DOCUMENT RESUME

ED 117 055 SP 009 751

AUTHOR	Thomas, Jerry R., Ed.; Weiss, Raymond A., Ed.
TITLE	Completed Research in Health, Physical Education, and Recreation Including International Sources. Volume 17, 1975 Edition Covering Research Completed in 1974.
INSTITUTION	American Alliance for Health, Physical Education, and Recreation, Washington, D.C.
PUB DATE	75
NOTE	174p.
AVAILABLE FROM	AAHPER Publications Sales, 1201 Sixteenth Street, N.W., Washington, D.C. 20036 (Stock No. 248-25770, 1-9 copies, $8.95 ea., 10 or more copies, 10 percent discount)
EDRS PRICE	MF-$0.76 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS	*Abstracts; Bibliographies; Doctoral Theses; Educational Research; *Health Education; Masters Theses; *Physical Education; *Recreation; *Research Reviews (Publications)

ABSTRACT

This compilation lists research completed in health, physical education, and allied areas during 1974. It is arranged in three parts. Part one is an index which cross references the listings in parts two and three. References are arranged under subject headings, which are in alphabetical order. Instructions for using the index are also given in this section. Part two is a bibliography which consists of a listing of articles published in the 180 periodicals reviewed by the Committee for Completed Research. The periodicals reviewed are also listed. Part three contains the abstracts of master's and doctoral theses from institutions offering graduate programs in health, physical education, recreation, and allied areas. Reporting institutions are also listed. Most references are accompanied by abstracts of the research and all are numbered in alphabetical order according to institution. Names of institutional representatives sending in these abstracts are indicated after the name of the institution; major professors are listed after each reference. (Author/BD)

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in Health, Physical Education, and Recreation

including international sources

Volume 17 1975 Edition

covering research completed in 1974

Edited by **JERRY R. THOMAS** and **RAYMOND A. WEISS**
for the RESEARCH COUNCIL of the AMERICAN ALLIANCE
FOR HEALTH, PHYSICAL EDUCATION, AND RECREATION

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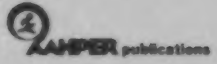

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INTRODUCTION

This compilation lists research completed in the areas of health, physical education, recreation, and allied areas during 1974. It is arranged in three parts.

I. **Index.** In this section, cross references are given for all the listings in Parts II and III. References are arranged under the subject headings, which are in alphabetical order. Instructions for using the index are given at the top of page 1.

II. **Bibliography.** This is a listing of published research, citing articles published in the 180 periodicals reviewed by the Committee for *Completed Research*. The periodicals reviewed are listed in pages 161 through 162.

III. **Theses Abstracts.** These are master's and doctor's theses from institutions offering graduate programs in health, physical education, recreation, and allied areas. Institutions reporting are listed on pages 163 and 166. Most references are accompanied by abstracts of the research and all are numbered in alphabetical order according to the institution. Names of institutional representatives sending in these abstracts are indicated in parentheses after the name of the institution, major professors are in parentheses after each reference.

Universities and colleges are encouraged to submit abstracts of theses completed at their institutions in the year 1975 for inclusion in the next issue of *Completed Research*. Material should be sent to Jerry R. Thomas, Chairman for Theses Abstracts.

Jerry R. Thomas
Florida State University
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Committee on Completed Research

PART I—INDEX

This index enables the reader to refer to the items of completed research listed in Parts II and III. Research topics are arranged in alphabetical order. The reference numbers following each topic correspond to the listings of completed research dealing with that topic. The capital letter B indicates a reference to be found in the Bibliography (Part II); the capital letter T indicates a reference to be found in the Theses Abstracts (Part III).

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Wrestling: B 193, 411, 546, 561, 685; T 17, 52, 69, 124, 140, 474, 493, 511, 577, 646

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PART III—THESES ABSTRACTS

Abbreviations appearing in this publication:

AAHPER = American Alliance for Health, Physical, Education, and Recreation (abbreviate all familiar organizations, e.g., AAU, NCAA, etc.)
ANCOVA = analysis of covariance
ANOVA = analysis of variance
BTPS = body temp pressure saturated
C = centrigrade
CA = chronological age
CO_2 = carbon dioxide
χ^2 = chi square
° = degrees
ELE = elementary
EKG = electrocardiogram
EMG = electromyogram
EMR = educable mentally retarded
exp. = experiment or experimental
F = Fahrenheit
F = *F* ratio
FEV 1.0 or 2.0 = forced expiratory volume
gm = gram
GPA = grade point average
HE = health education
ht. = height
HR = heart rate
IQ = intelligence quotient
JHS(s) = junior high school(s)
kg = kilogram
kg/m = kilogram per meter
kpm/min = kilopondmeter per minute
KR = knowledge of results
measurement, units of
mm = milimeter
mph = miles per hour
msec = millisecond (s)
MT = movement time
no. = number (in text e.g., the total no. of days . . .)
N = number (e.g., of subjects) all numbers in arabic form
N_2 = nitrogen
O_2 = oxygen
p = probability (*p* .05 = significance greater than .05 level, *p* .01 = nonsignificance at the .01 level)
PE = physical education
PR = pulse rate
PWC_{170} = physical work capacity
% = percent
psi = pounds per square inch
max = maximum or maximal
r = correlation
REC = recreation
RLV = residual lung volume
rpm = revolutions/min
RT = reaction time
SV = stroke volume
SD = standard deviation
SHS(s) = senior high school(s)
STPD = standard temp. pressure dry
S(s) = subject(s); *S*'s = subject's (possessive) fresh., soph., jr., sr.

t = t ratio
tests**
temp. = temperature
U.S. = United States
USSR = Union of Soviet Socialist Republic
wt. = weight
VO_2 = oxygen uptake
V_E = ventilation equivalent
$\bar{x}$ = mean
V_T = tidal volume

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* in. = inch; sec = second, wk = week, hr = hour, etc.

** Abbreviate all kinds of performance tests if possible (e.g., CPI = California Psychological Inventory, Cattell 16 PF = Cattell 16 Personality Factor Inventory, MMPI = Minnesota Multiphasic Personality Inventory).

ABSTRACTS

AUBURN UNIVERSITY, AUBURN, ALABAMA (Richard K. Means)

1. KRIDAKORN, Kittilax Apple. *Grip strength, flexibility, and endurance of 21 black, high school girls at three different times during the menstrual cycle.* M.S. in Health Education, 1974. 64 p. (Richard K. Means)

The study was designed to determine the grip strength, flexibility, and endurance of 21 black SHS students at 3 different times during the menstrual cycle. The *S*s were tested at 1 mo. intervals for 3 mo. on 3 physical performance tests: (hand dynamometer for grip strength, adapted Kraus-Weber floor touch for flexibility, and Harvard Step Test for endurance). Each *S* was allowed 3 trials in the first 2 tests. Scores were recorded to the nearest pound on the grip strength and the nearest 1/10 in. in flexibility. The arithmetic $\bar{x}$ and fitness index for each test were calculated and the *S*s were divided into 2 groups, under 17 and over 17 yr. of age. The data were analyzed using 3-way ANOVA for a 3-factor experiment. The *F* distribution table was consulted for statistical significance at the .05 level. Differences in grip strength were found which were significant, with the strongest $\bar{x}$ scores occurring during the postmenstrual phase. No rhythmic variations could be established in this group of SHS girls. No interaction between the menstrual cycle, flexibility, and endurance were found.

BOWLING GREEN STATE UNIVERSITY, BOWLING GREEN, OHIO (N. Jean Bateman)

2. FAHLSON, Genger A. *A study comparing the lecture-demonstration method with a mechanically oriented method of beginning golf instruction.* M.S. in Physical Education, 1974, 164 p. (N. Jean Bateman)

Bowling Green State University women students ($N = 38$) were subjects for this study. The lecture-demonstration group received instruction by explanations given to the entire class as a group, supplemented by instructor demonstration. The mechanically oriented group received instruction given by slide sequences, supplemented by the instructor answering student questions. Slide sequences included explanations of mechanical principles related to the skills involved. All *S*s were given a 5 iron test, 9 iron test, and putting test, and all played a 9 hole round of golf on a regulation course. Statistical results were analyzed to test the null hypothesis that there was no significant difference between terminal performances of *S*s in the 2 groups. The raw scores were statistically treated by ANOVA. Reliability coefficients and predictions were calculated from the scores obtained. It was concluded that the lecture-demonstration group and the mechanically oriented group using slide sequences were not significantly different ($p > .05$) on the performance of the composite 5 iron test or on each of the components of the 5 iron test (trajectory, distance, and accuracy), on the trajectory component of the 5 iron test, and on performance on 9 holes of regulation golf course play. The mechanically oriented group was significantly superior to the lecture-demonstration group ($p < .05$) on the composite 9 iron test, the accuracy component of the 9 iron test, and the combined 3 ft and 15 ft putting test.

BRIGHAM YOUNG UNIVERSITY, PROVO, UTAH (Donald D. Shaw)

3. ALIJANIAN, Reza. *The effect of exercise and diet on serum lipid levels in rats.* Ed.D. in Physical Education, 1974, 75 p. (E. S. Roundy)

Three diet programs, differing in type of carbohydrate or fat ingested, were crossed with 4 exercise programs, including normal activity and 3 forced exercise levels of 20, 40, and 60 min. Food consumption for the 8-wk study was monitored and recorded, and beginning and end-study weights were taken. A fasting serum sample was analyzed by the Folch Method to assess cholesterol levels. At the .01 level, the following conclusions were drawn: daily exercise at study levels is effective in reducing body wt., serum cholesterol and amount of food intake, and regular exercise and amount of food consumed have a greater effect on body wt. than on serum cholesterol.

4. ANDERSEN, Carolyn. *The use of a tutoring program for emotionally disturbed children as a vehicle for attitude change in predelinquent adolescent tutors.* M.S. in Health Science, 1974, 42 p. (B. Q. Hafen)

Male 9th grade JHS students (N = 10), age 14, who were considered behavioral problem and/or predelinquent by the school staff were placed in 2 groups: October to January, group A, and October to May, group B. Rosenberg's Self-Esteem Scale, Bill's Index of Adjustment and Values, and Schultz's FIRO-B were administered as pre- and posttests and an ANOVA was used to determine significance at the .05 level. It was concluded that participation in a tutoring program for emotionally disturbed children had no significant measurable effect in the areas of self-esteem, attitude and values, and social interaction. It was also shown that attitude and value variables did change significantly, but only when the individual effect was considered. However, the exactness of the individual effect is questionable because there was no pattern to the tutor's scores.

5. ANDERSON, Ernie T. *The effect of a selected jogging and a selected walking program on maximum oxygen uptake, body composition, and total body strength of female college students.* Ed.D. in Physical Education, 1974, 113 p. (P. E. Allsen)

*S*s were selected (N = 63) from jogging classes at Brigham Young University, and performed prescribed workouts of 2 mi 4 day wk for 14 wk. Twenty *S*s jogged, 21 *S*s walked, and 22 *S*s were controls. Pre- and posttests were max VO_2, hydrostatic weighing, and McClay Strength Test for grip, leg, back, and arm strength. ANOVA was done and significance was determined at the .05 level. A Newman-Keuls Sequential Range Test was also employed. It was concluded that both jogging and walking programs can bring about an increase in max VO_2. Jogging programs yield the greatest increase in max VO_2, and increase total body strength. There were no significant changes in body composition as a result of either program.

6. ANDERSON, Gary W. *The relationship between demographic factors and the incidence of chronic disease.* M.S. in Health Science, 1974, 55 p. (D. D. Shaw)

Of the 256 people in the Orem/Provo, Utah area interviewed, 200 had chronic diseases. These data were stratified, tabulated, and subjected to a χ^2 test to determine statistical correlations. The following conclusions were made based on the findings. Numerous nonsignificant relationships did exist between various chronic diseases and moderator variables. Chronic disease knows no age barrier; young and old can be afflicted alike. As educational attainment increased, the likelihood of not contracting a respiratory or degenerative chronic disease decreased. Length of residency in the Orem/Provo area had a definite effect on the incidence of chronic ailments. Visual impairments, asthma, hay fever, and allergies were the conditions of highest incidence in this study.

7. ARMSTRONG, Joan. *The effect of motor ability and endurance on selected physical education skills of college men and women.* Ed.D. in Physical Education, 1974, 213 p. (L. Holbrook)

The *S*s (N = 173) were all enrolled in either conditioning, field hockey, soccer, volleyball, badminton, tennis, or golf at Skagit Valley College. The data from 3 skill and 3 cardiovascular variables, 3 motor ability items, and 16 personality traits were analyzed for r, ANOVA, and multiple regression. It was concluded that cardiovascular endurance is not related to skill achievement in classes where learning sport skills are emphasized, and the prediction of skill achievement can be improved with the addition of the EPPS to the preskill test.

8. BATTY, P. Michael. *A suggested two-year recreation curriculum for Utah Technical College at Provo.* M. A. in Recreation Education, 1974, 82 p. (C. Thorstenson)

Curricula from 7 universities and junior colleges and classes from 15 universities and junior colleges were selected for consideration. Program feasibility was ascertained by interviews with persons and employers whose occupations related to the suggested curriculum of motorcycle/snowmobile technician, recreation guide, and parks and recreation technician training. Cost feasibility was determined from a budget breakdown and a dollar-per-student expenditure construction based on Utah Technical College at Provo financial reports. Findings of the study suggested that a demand for a recreation technician trained by the suggested curriculum did exist both regionally and nationally.

9. BLAD, Merlin A. *The effect of participating in high school football on self-concept*. M.S. in Physical Education, 1974, 42 p. (B. L. Bangerter)
The 1972 Lincoln County HS varsity (N = 22) and jr. varsity football teams (N = 22) were Ss. Criterion measurement was by the Self and Other Rating Scale given 4 times; first practice day, after the first win, first loss, and at the season's end. An ANOVA revealed that being a varsity team member did not produce better self-concepts than jr. varsity players, being a starter on either team did not produce a better self-concept than a substitute, and participation in HS football did not contribute to an increase in self-concept.

10. BRASHER, C. Lynn. *Personality traits of women athletes at Brigham Young University*. M.S. in Physical Education, 1974, 90 p. (B. L. Bangerter)
A sampling of 209 women students, 125 athletes and 84 nonathlete controls was administered the Cattell 16 PF Form A between Jan and June 1974. One way ANOVA and t tests were calculated for the 16 variables, comparing personality traits of athletes with the random control Ss, and comparing each with national norms established by the Cattell 16 PF questionnaire. Team and individual—dual sport participants were compared to each other, the control group, and the national norms. A determination of district personality traits was also made. Two of 16 factors differed between athlete and control Ss ($p < .05$), control Ss differed on 7 of 16 traits ($p < .05$), and specific sport activities did not differ ($p > .05$).

11. DUSARA, Shavji P. *A proposed curriculum for the training of physical education teachers at the University of Dar Es Salaam in Tanzania*. M.S. in Physical Education, 1974, 81 p. (E. S. Roundy)
The development of the proposed curriculum involved extensive study of relevant literature through library technique, visitation to different universities in the U.S., discussions with PE specialists, and letter writing to Tanzania, Africa, to obtain information necessary for the study. The members of a panel of experts unanimously expressed the opinion that the proposed curriculum was meaningful, relevant, and valid for implementation. It was concluded that this curriculum is effective and feasible for the preparation of PE teachers at the University of Dar Es Salaam, and the implementation of this program will provide the youth of Tanzania an opportunity to develop well-rounded personalities in a series of systematic experiences in PE.

12. FERNELIUS, Neka Jane. *Feasibility and a suggested program for Provost Community School*. M.A. in Recreation Education, 1974, 101 p. (J. Naylor)
Faculty and staff were surveyed concerning acceptance of a community school program, and local residents were surveyed as to their desires and interests. Data were processed by computer and it was concluded that more women were interested in community school than men, residents 25 or younger were more interested than older people, socioeconomic status did not influence participation, those of higher educational levels had more interest than those of a lower level, the present faculty and staff who were under age 30 were more receptive to public use of school facilities, and staff at Provost School favored a community school program being offered.

13. GARDNER, Joel Delos. *A study to determine what adjustments in possession time would be necessary in the basketball games at the Utah State tournaments to conform to a thirty-second clock*. M.S. Physical Education, 1974, 125 p. (B. Jarman)
Sixty-seven games from the Utah HS Basketball Tournaments in 1972, 1973, and 1974 were analyzed for length of each possession, opposing type of defense, and stall or nonstall situation. Total number of possessions vs. number of possessions greater than 30 sec in both stall and nonstall situations were primarily considered. The following conclusions were made: very few adjustments would be necessary to conform to a 30-sec clock; without stalling situations, there would be an average of less than 1 possession greater than 30-sec per team per game; teams held the ball longer against a zone defense; teams had more possessions greater than 30-sec against a zone defense than against a man-to-man defense.

14. HICKS, Gary Lee. *Family recreational practices as a predictor of marital cohesiveness*. M.A. in Recreation Education, 1974, 102 p. (C. Thorstenson)
A random sample of 200 families from the Salt Lake City area was selected and assessed by questionnaire. A total of 186 questionnaires were completed and the data were analyzed by computer for a Pearson's product moment correlation coefficient, yielding an r- of .5903, significant positive correlation. A simple regression equation test for linear prediction was done to determine predictability of marital cohesiveness by recreation practices and a 19% efficiency rate was shown ($p < .001$).

15. HOLLEY, Bruce F. *Alumni and students evaluate the recreation education program at Brigham Young University*. M.A. in Recreation Education, 1974, 153 p. (B. K. Olsen)
The *S*s were selected from the alumni pool from the years 1968 to 1973 and all 315 with current information were sampled by questionnaire. In addition 120 students enrolled in the recreation program were sampled. Findings indicated that of the 151 graduates responding to present employment, 66.7% were working in recreational areas and 33.3% were not. With respect to educational preparation, 9.5% felt it was excellent, 38.3% replied above average, 17.5% said average, 3.8% indicated below average, and 1.6% felt it was poor.

16. JIBBEN, James J. *The effect of a career exploration program on goal orientation and self-concept of the disadvantaged adult*. M.A. in Recreation Education, 1974, 53 p. (J. Naylor)
Pretesting consisted of employment records and the Tennessee Self-Concept Scale. *S*s participated in the Central Wyoming College Career Exploration Program. The Tennessee Self-Concept Scale was retaken on the final day of the program and employment records were reexamined 90 days after completion of the program. Mean differences were tested by *t* tests and these conclusions were drawn: significant change in goal orientation was shown, no significant self-concept changes were shown, and no significant difference between participant's self-concepts and norms established by William Fitts was shown.

17. KLOEPFER, Henry E. *Assessment of seasonal body composition changes of varsity wrestlers*. M.S. in Physical Education, 1974, 50 p. (B. Jarman)
Body density and per cent body fat were monitored throughout the entire wrestling season. *S*s were the 1st and 2nd team wrestlers. Data from hydrostatic weighings were analyzed for significant variations between teams, individuals, and weighing times. Statistically significant findings lead to the conclusions that *S*s showed differences among individuals ($p < .01$), weighing times varied significantly ($p < .01$), and there was no change in body composition between the teams ($p > .05$).

18. MANN, Ralph V. *A mechanical analysis of the 440 yard/400 meter hurdles*. M.S. in Physical Education, 1974. (P. E. Allsen)
A film study was made of a hurdler representative of the championship class 13 step technique, the predominant pattern of top hurdlers today. The findings were evaluated from cinematographical analysis and applied to produce technical improvements and aid in formulating coaching procedure. From a mechanical standpoint, the key to successful hurdle form is proper motor execution, precise body center of gravity positioning at touchdown, and exact timing as to execution.

19. McKIBBEN, Stephen A. *A comparison of three work loads of varying intensity and distance on cardiovascular endurance*. Ed.D. in Physical Education, 1974, 57 p. (E. S. Roundy)
Male *S*s ($N = 15$) were matched according to initial max VO_2, ml/kg/min. *S*s were randomly assigned into the 3 exp. groups. Training covered a 7-wk period, 5 days/wk. Group I ran for 15 min at 150 HR. Group II interval trained for 15 min between 120 and 180 HR. Group III covered the same distance as group II, but in continuous run and at 150 HR. Running was done on a treadmill at 0 grade with distance, time, HR, and speed completely controlled. Max VO_2 ml/kg/min for 1/min; resting HR; max HR; mile run; and per cent body fat were the pre- and posttest parameters. An ANOVA on the pre- and posttest, gain, *r*, and Tukey's Range Test were used to test for significance of results. The following conclusions resulted. Running 15 min a day at HR of 150 bpm for 7-wk will produce cardiovascular improvement, and when expending equal amounts of energy during 2 given times, there is no difference in continuous and interval training for cardiovascular benefits.

20. McCLEAN, Daniel Dean. *A projection of outdoor recreation facility needs for Provo, Utah, in 1985*. M.A. in Recreation Education, 1974, 90 p. (W. J. Hafen)
Data were gathered through interviews with individuals at Provo's City Hall working in planning, engineering, and parks and recreation departments. Additional information was gathered from sources at Provo City, Utah County, and the Bureau of Census reports. Findings revealed that Provo City did meet the 1973 demands of average for neighborhood parks, based upon National Recreation and Park Association Outdoor Standards, but several census tracts were not served by neighborhood parks.

21. MERGENTHALER, Richard D. *Analysis of qualities most stressed by high school basketball coaches when selecting team members*. M.S. in Physical Education, 1974, 56 p. (J. R. Jones)

A questionnaire was developed for this study and submitted to 43 coaches in the AAAA and AAA classes. Group A coaches had the highest winning percentage and group B coaches had the lowest winning percentage. Thirty-two coaches responded to the Questionnaire and the data evaluated at the .05 level of significance. Findings showed that the physical traits most looked for are quickness, shooting ability, speed, size, coordination, and jumping ability. Personality traits are coachability, ambition, aggression, team player, mental toughness, and determination. There was a significant difference in the main rating of these traits between the 2 groups. The most important traits were quickness and coachability, both physical and personality traits being important. It was concluded that both must be considered and methods of observation and evaluation for both must be developed.

22. MILLETT, Howard L. *An evaluation of social and physical changes in social dance students at Brigham Young University*. M.A. in Recreation Education, 1974, 63 p. (C. Thorstenson)

Two classes of social dance were the exp. group and one rec. ed. class was the control for this study. Pre- and posttesting included the Tennessee Self-Concept Test and modifications of both the Bill's Index of Adjustment and the Body Cathexis Scale. ANOVA indicated that no significant change was made in the *Ss*' concept of physical change, social change, positive self-esteem, personal self, self-satisfaction, individual identity, or behavior.

23. MUIR, Ronald I. *An analysis of a parent tutorial program for children with reading disabilities*. M.S. in Recreation Education, 1974, 143 p. (J. Naylor)

Control and exp. *Ss* ($N = 48$) were randomly selected from the Exemplary Center for Reading Instruction Clinic. The control group received 180 min of tutorial reading instruction daily and the exp. group received 90-min tutorial and 90-min parental help daily. The parents involved had specific directives to follow both in the clinic program and at home. Seven variables from the Durrell Analysis of Reading Difficulty Test were assessed and a multivariate ANOVA comparing all 7 variables simultaneously was performed. At $p < .001$, findings favored the exp. group in Oral Reading Rate, Oral Reading Comprehension, Word Recognition, Silent Reading Rate, Silent Reading Comprehension, and Spelling. Word Analysis was significant in favor of the exp. group ($P < .01$).

24. PARSONS, Pamela. *The effect of the menstrual cycle on maximum oxygen uptake*. M.S. in Physical Education, 1974. (P. E. Allsen)

Ten women intercollegiate athletes were tested 12 times each during 3 consecutive menstrual cycles, 4 phases in each cycle. Max vo_2 was measured with a Beckman E-2 O_2 analyzer and results recorded via high velocity gasometer and physiograph. ANOVA done on the results revealed no significant differences in the max vo_2 over the 3 mo, the 4 selected phases, or the 12 test periods. Based on these results, it was concluded that there were no changes in max vo_2 during the menstrual cycle.

25. PEACOCK, Richard C. *A handbook of instructions for the BYU twenty-eight day outdoor survival program*. M.A. in Recreation Education, 1974, 149 p. (C. Thorstenson)

Primary information was obtained through research of existing publications, related literature in the field, existing programs, experts of survival, and personal notes. Preclass needs, 2-day class, impact, weekends, group expedition, survival week, student expedition, the rappel, solo, postclass needs, back-up, public relations, and program results were analyzed, compiled, and reported.

26. PRICE, Sandra. *The effects of weight training on strength, endurance, girth, and body composition in college women.* M.S. in Physical Education, 1974, 94 p. (G. Fisher)
Ss ($N = 76$) were randomly divided into 3 exp. groups and 1 control group. The control group did not engage in physical training during the 10-wk period between pre- and posttests. The weight lifting design was 3-fold, 1 set of 24 reps, 3 sets of 8 reps, and 4 sets of 2 reps, for groups A, B, and C, respectively. Training was accomplished twice weekly. An ANOVA was run to determine significance of change and *r* was used to determine if a relationship existed between increases in strength and endurance, and between increases in strength and decreases in skinfold measurements. The posttest revealed significant increases in strength and muscle endurance, decreases in all skinfold measurements, 3 of 7 girth measurements, and present body fat.

27. ROBERTS, Robert M. *A proposed physical education program for potential high school dropouts.* M.S. in Physical Education, 1974, 51 p. (C. Jensen)
The proposed program was formulated for Olympus HS in Salt Lake City, Utah, and included survival, jogging, weight training, trampoline, flag football, tennis, volleyball, table tennis, swimming, softball, and student teaching of mentally and physically handicapped students. Four potential dropouts regulated the program under supervision, giving them increased opportunity and responsibility. A "nonfailure" self-evaluation grading system was also designed as a success orientation measure at the conclusion of each unit of the program. It was concluded that the proposed program was highly satisfactory based on responses to questionnaires distributed to potential dropouts, and responses from 4 expert consultants observing the program.

28. ROSS, Roy Gene. *The factors affecting the quality of visitor experience at Timpanogos Cave National Monument.* M.A. in Recreation Education, 1974, 74 p. (B. K. Olsen)
A survey was conducted analyzing the affects of noise, litter, number of people in the monument, number of people on the cave tour, and overall visitation patterns on visitor experience quality. These data along with information from visitation records at Timpanogos Cave were tabulated by computer. The findings revealed that 84.6% of visitations occurred between June and August, but the quality of experience did not vary significantly from that in the other months. Preserved natural scenery was the single, most favorable comment. Visitors rated the quality of their experiences at Timpanogos Cave to be above average.

29. SEAGLE, Edward E., Jr. *A study of the feasibility of integrating blind, deaf, and non-handicapped youngsters in an outdoor resident camp setting.* M.A. in Recreation Education, 1974, 68 p. (B. F. deHoyos)
Through careful analysis of related literature and a study of desired information, a questionnaire was developed and mailed to 50 campuses, which serve the handicapped, within the U.S. and Canada. Thirty camps responded. The data were computerized and a frequency distribution determined to analyze the responses. It was concluded that this type of integration was feasible in terms of contributing to the welfare of all 3 types of children involved. The study also indicated trends in program possibilities, and outlined definite minimal requirements for leadership in the proposed setting. It was also shown that private ownership and operation was not feasible, but rather camp fees should be instituted as a means of financing.

30. SHEPHERD, James T. *The contribution of karate toward the development of strength and endurance.* M.S. in Physical Education, 1974, 59 p. (E. S. Roundy)
A pre- and posttest consisting of the McCloy Strength Test and the Treadmill Test of Physical Fitness for Hard Muscular Work were given to 50 control *Ss*, not participating in activity classes at Brigham Young University, and 28 exp. *Ss*, enrolled in beginning karate classes. Outside activities for both groups were not controlled during the test period. Significance ($p \leq .05$) produced these conclusions: karate contributed to the development of chinning ability; karate did not contribute toward the development of overall strength or toward the development of endurance. These data also support the contention that karate does not contribute to endurance in the novice performer.

31. SNOW, Robert. *The effect of twenty-nine days of outdoor survival on noise tolerance and anxiety*. M.S. in Recreation Education, 1974, 64 p. (C. Thorstenson)

Ss ($N = 46$) were enrolled in a survival course, and for the period 5 July to 3 August, *Ss* were in a desert survival experience. The Taylor Manifest Anxiety Scale was administered as pre- and posttest device for anxiety and those *Ss* with scores above 18 were asked to volunteer for hearing tests. The data were analyzed by ANOVA and at the .05 level of significance it was concluded that levels of anxiety were significantly reduced, levels of speech reception threshold and noise threshold were reduced for both quiet and noise backgrounds, and noise threshold was reduced. Neither sex nor anxiety difference were significant factors in these reductions ($p > .05$).

32. SORENSEN, Wayne J. *The effects of a special strength training program on the self-concept and peer approval of seventh grade boys*. M.S. in Physical Education, 1974, 32 p. (B. O. Jarman)

Ss were selected via the Tennessee Self-Concept Scale and a Sociogram and were pretested for strength and fitness with the Oregon Simplification of the Strength and Fitness Indices. A weight lifting program was set up with 2 reps/set of 4–6 sets of near max capable wt for bench presses, dead lifts, power pulls, and dips. The exp. group exercised in the program 3 times a week. The analyzed results produced the following conclusions, $p < .01$: the exp. group had significantly greater strength gains, greater increase in peer popularity, and significant positive change in self-concept. The computed *t*-score for paired data indicated that the treatment did have a positive effect.

33. STAHELI, Wendell Kent. *A comparison of the effects of isokinetic and isotonic exercise methods on leg strength, vertical jump, and thigh circumference*. Ed.D. in Physical Education, 1974, 104 p. (E. S. Roundy)

Eighty male students enrolled in weight training classes were selected and randomly assigned to 4 treatment groups: group A performed 3 sets of 6 rep on a Mini-Gym power pack, group B exercised 3 sets of 6 on a Universal Gym leg press station, group C executed 3 sets of 6 half-squats using an Olympic barbell, and group D was a control and did not participate. Isokinetic gains with the power rack and isotonic gains with the Universal and Olympic barbells were determined by pre- and posttesting, the data being analyzed at the .01 level of significance and subjected to Tukey's Studentized Range Test. It was concluded that significant improvement in all criteria measures was made by all groups, but no significant differences were detected among the groups.

34. STINEBAUGH, Thomas L. *An investigation of health misconceptions among students enrolled in personal health classes at Brigham Young University*. M.S. in Health Science, 1974, 75 p. (D. D. Shaw)

A Health Opinionnaire developed from health misconceptions was secured and administered to 3 sections of students. The prevalence and nature of certain health misconceptions before instruction in personal health and the relationship of the misconceptions to SEX, religion, GPA, HS size, type of HS health education, and geographic area of HS graduation were analyzed by ANOVA. Findings indicate that *Ss* in this population subscribe to many misconceptions, regardless of background. Three health concept misunderstandings had the highest percentage of incorrect responses. Nutrition and consumer health were next. This study indicates that significant efforts in health education at the secondary level are very necessary to overcome the delineated deficiencies.

35. THORNTON, Kathie Lynn. *Relationship between skinfold measurements by experts and college students using lange calipers and selected inexpensive calipers*. M.S. in Physical Education, 1974, 76 p. (J. M. Harrison)

Eighty-six non-PE major female *Ss* were randomly selected and triceps and subscapular skinfolds were taken in the morning on 2 days with a 1-wk interval between. All skinfolds were on the right side and order of use of calipers was randomized. An ANOVA at the .05 level of significance was run on the data and the *r* between calipers were determined. The study concluded that the Lange caliper was a reliable measuring instrument when used by both novices and experts: all 3 inexpensive calipers, when used by experts, gave a valid indication of both skinfolds, and the Lyman was the best inexpensive caliper for subscapular skinfolds, when used by novices. Others tested were the vernier and the outside calipers.

36. VELORIA, Earl Esteban. *The history of volleyball on the island of Hawaii.* M.S. in Physical Education, 1974, 65 p. (B. O. Jarman)

Since 1917, when volleyball was first introduced by the missionaries to the Big Island of Hawaii, the game has been a strong influence in the social lives of her inhabitants. Original individual participants were used as primary sources in compiling information through personal interviews. Within the last 25 yr volleyball has become very important in the lives of the people of the Big Island through parks and recreation, public schools, churches and religious organizations, and clubs.

37. WARR, Susan A. *The effect of three teaching methods on the learning of skills in beginning archery.* M.S. in Physical Education, 1974, 69 p. (R. A. Bestor)

Method 1 with 20 *S*s was traditional with oral instruction and demonstration only. Method 2 with 18 *S*s, included a self-teaching instructional film. Method 3 with 28 *S*s, combined the film with reinforcement and analysis of videotaping of each student. Testing covered an 8-wk period. A *t*-distribution study revealed no significant differences between any of the groups $p > .05$, and the following conclusions were reached: the use of instructional videotapes did not significantly improve performances when used as an aid, and individual videotape recordings, twice in an 8-wk period, did not significantly improve performance when used in conjunction with the instructional film.

CALIFORNIA STATE UNIVERSITY, CHICO, CALIFORNIA (R. K. Cutler)

38. BOW, Walter Jack. *The relative effectiveness of two styles of baseball pitching in the development of speed and accuracy of young pitchers.* M.A. in Physical Education, 1974, 55 p. (R. Cutler)

Sixteen Broncho League baseball players were divided into 2 groups. One group was trained in the hip-rotation method of pitching for 6 wk and the other group was trained in the stride-through method of pitching for the same 6-wk period. After being tested for pitching speed and accuracy, the groups were rotated and repeated the training procedure with the other method. Following the 6-wk training period, they were retested. Throwing speed was measured by a timer activated when the ball, with its attached aluminum foil, was released from the copper wire electrodes attached to the first and second fingers of the throwing hand. The timer stopped when the baseball struck the target. Each *S* threw 5 recorded pitches at the speed target using each of the 2 pitching methods. Each *S* threw 100 pitches at a strike-zone accuracy target using each of the 2 pitching methods. Neither method was significantly better for either speed or accuracy. They were quite similar in their development of speed and accuracy.

CALIFORNIA STATE UNIVERSITY, HAYWARD, HAYWARD, CALIFORNIA (S. Clark)

39. CANARIO, James M. *Sport in the United States Marine Corps: 1952 to 1972.* M.S. in Physical Education, 1974, 66 p. (S. Clark)

United States Marine Corps policy, orders, and financial expenditures were analyzed to determine the emphasis placed on programs of athletics and physical fitness. The data indicated that the major purpose of athletics during the early 1950's was to further the combat readiness in the individual Marine. This purpose remained viable until 1962 when the emphasis was changed to identifying superior athletes for international competition. In 1966 intramural competition was promoted, but this policy was short lived. In 1969 the data indicated a return to the previous policy to identify and aid athletes for higher competition and this purpose remained through 1972. Recreation programs were largely expanded during the period and in 1972 financial expenditures for recreation far exceeded those for intramurals and athletics.

(C. Caplan)

40. KNAPIK, Joseph. *The influence of varying amounts of fatigue on learning and performance.* M.S. in Physical Education, 1974, 74 p. (C. Caplan)
Groups of 20 *S*s were fatigued at a 2–4%, 9–11%, or 25–27% work dropoff on a step-up task and then received 8 min of continuous trials on the Bachman Ladder Task. Learning was calculated from performance scores recorded 7 days later. Control *S*s were not fatigued. ANOVA indicated that significant performance depressions occurred in all 3 fatigue groups. Only the most heavily fatigued group (25–27%) showed a significant learning depression.

(R. Rivenes)

41. MARKIEWTZ, Cheryl J. *The effect of visual field structure on underwater body orientation.* M.S. in Physical Education, 1974, 41 p. (A. Carr)
Thirty female *S*s were given an underwater body orientation test which consisted of submerging underwater and tilting the body 45° to the left. Three visual field conditions were present. The Horizontal and Vertical Field consisted of a grid of horizontal and vertical lines; the Circular Field consisted of concentric circles; the No Vision Field involved performing with blackened goggles. *S*s were also given the standard Rod and Frame Test. ANOVA indicated that *S*s performed more accurately with the Horizontal and Vertical Field than with the No Vision Field. Field dependence as measured by the Rod and Frame Test was not related to underwater body orientation performance.

(R. Rivenes)

42. MARTIN, Bradley N. *An analysis of the effect of parental social status on children's game selection.* M.S. in Physical Education, 1974, 94 p. (M. Hart)
Game choices of kindergarten, 1st grade, and 2nd grade students from high socioeconomic status families; mixed high, middle, and low socioeconomic status families; or low socioeconomic status families were analyzed. All *S*s experienced 3 game sets consisting of a central person-oriented game and a noncentral person game. Each *S* was then asked which game he or she would like to play again. χ^2 analysis indicated that there were no significant differences in game choice among the children of various socioeconomic status families. Game choice was also not related to sex, grade level, or number of children in family.

(C. Caplan)

43. NELSON, Linda M. *Personality trait modifications accompanying changes in body composition of obese women participating in a weight control program.* M.S. in Physical Education, 1974, 60 p.
Twenty-five obese women voluntarily participated in a 16-wk weight control program. Pre and postphysical measurements (body weight and triceps skinfold thickness) and pre and postpsychological measurements (neuroticism–stability and extraversion–introversion) were made. It was found that during the 16-wk period the *S*s were able to decrease body weight and to reduce triceps skinfold thickness. The initially more stable *S*s experienced greater changes in body composition than the initially more neurotic *S*s. No significant changes in the 2 psychological dimensions occurred during the program.

CALIFORNIA STATE UNIVERSITY, LONG BEACH (J. Mastropaolo)

44. JOHANNES, Keith E. *Equating exercise expired volumes with postexercise.* M.S. in Physical Education, 1972, 45 p. (J. Mastropaolo)

Ventilation measurements can accurately measure fitness in the exercise physiology laboratory. In PE classes it is not always possible to take ventilation measures during exercise. The object of this study was to develop a regression equation that would accurately predict the exercise expired volumes from the postexercise. The *S*s, 31 HS boys, exercised on a bicycle ergometer at 5 work rates ranging from 300 to 1500 kpm/min. Collections of expired air were made during the last 15 sec of exercise and from 5 until 20 sec after exercise. At 300 kpm/min the *r* between exercise and postexercise expired volumes was .70 and the regression equation predicting the exercise expired volume was $Y = 19.84008 + .51248X$, the r^2 of the prediction was .49, and the standard error of the estimate (SEE) was 5.5 L/min. At 600 kpm/min the *r* was 0.27, the regression equation was $Y = 38.93547 + .23750X$, the r^2 was .07 and the SEE was 6.8 L/min. At 900 kpm/min the *r* was .45, the regression equation was $Y = 45.57138 + 0.51608X$, the r^2 was .20 and the SEE was 12.3 L/min. At 1200 kpm/min the *r* was 0.57 and the regression equation was $Y = 34.40262 + .89357X$, the r^2 was 0.32 and the SEE was 15.4 L/min. At 1500 kpm/min the *r* was .63 and the regression equation was $Y = 49.31884 + .78588X$, the r^2 was .39 and the SEE was 16.1 L/min. With all data combined the *r* was 0.92, the regression equation was $Y = 4.64473 + 1.21393X$, the r^2 was .85, and the SEE was 14.1678 L/min.

45. JOHNSON, Ruth Eileen. *The effects of measured exercise on dietary intake and body composition.* M.A. in Home Economics, 1971, 117 p. (J. Mastropaolo)

A ten-wk measured exercise program designed to reduce blood pressures and body fat and increase estimated max VO_2 was studied on 27 volunteer men and women. *S*s were divided into groups according to age and sex. Group 1 consisted of 20 college women, age 19 to 24; group 2, 5 women, age 25 to 59; and group 3, 2 college men, age 19 and 20. Body composition was determined by the following anthropometric measurements: ht., wt., bi-iliac width and skinfolds at the triceps, biceps, scapula, and iliac crest. Measurements were taken before the exercise program and during the 10th wk. Skinfold measurements were used in regression equations to calculate body density and estimate body fat. A nutritional evaluation was obtained by a dietary history and persons' nutrition history. Changes in food intake were evaluated by 3-day dietary records obtained before the exercise program during the 5th and 10th wk of exercise. For group 1 the exercise work rate increased from the initial rate of 308 kpm/min to a maximum of 1,033 during the 9th wk of exercise with a corresponding increase in HR from 127 to 177 bpm. Corresponding dietary changes were a significant decrease in intakes for calories (167 calories) and carbohydrate (31 gm), but the decrease in protein was not significant. Fat intake remained fairly constant. The following changes in body composition were recorded: significant decreases in all skinfolds resulting in corresponding increases in body density and decreases in percentage body fat with an insignificant decrease in body weight. For group 2 the exercise work rate increased from the initial rate of 277 kpm/min to a maximum of 849 during wk 8 with corresponding increases in the HR of 115 to 154 bpm. Corresponding dietary changes were an increase in caloric intake through the 5th wk and a decrease by the 10th wk. Carbohydrate and protein intakes increased similarly. A significant increase in calcium intake was noted. Fat intake fluctuated during the study. The following changes in body composition were recorded: decreases in all skinfold measurements with resulting increases in body density and decreases in percentage of body fat. The nutrient intake of both groups met or was above two-thirds National Research Council Allowances for all nutrients except iron. Vitamin A for group 1 fell below two-thirds National Research Council Allowances during period 2. Evaluations of nutrient intake by the dietary history and diet record were similar.

46. REED, John K. *The effects of a high school physical education class on estimated maximal oxygen consumption and resting pulse rates.* M.S. in Physical Education, 1972, 44 p. (J. Mastropaolo)

Three HS PE classes significantly increased their estimated max VO_2: class 1 increased 6 ml/min·kg, $p < .05$; class 2 increased 7 ml/min·kg, $p < .01$; and class 3 increased 8 ml/min·kg, $p < .05$. All 4 classes significantly decreased their resting HR: class 1 decreased 10 bpm, $p < .001$; class 2 decreased 8 bpm, $p < .001$; class 3 decreased 10 bpm, $p < .001$; and class 5 decreased 10 bpm, $p < .001$. The results suggest that if HS boys are exercised at or above a critical threshold of training, they should significantly increase their estimated max VO_2 and significantly decrease their resting HR.

47. ZANDERS, Clara M. *Skinfolds to predict body fat in young girls competing in track.* M.A. in Physical Education, 1973. 70 p. (J. Mastropaolo)
Twenty girls (age 14, 15, and 16) were selected for this investigation. The logarithms of the skinfold gave higher *r*'s, lower standard errors of estimates, and more accurate prediction equations than the skinfold in mm for both body density and body fat. The umbilical skinfold was the most valuable measurement as a predictor of body density, body fat, and lean body wt. Lean body wt. was predicted with greater accuracy than body density. The equation found to be most accurate and practical was: lean body weight (kg) + 4.38819 + .85544 (gross wt., kg) − .29399 (Umbil mm). The multiple correlation, *R* was .98, the R^2 was .96, and the standard error of estimate was 1.069.

CENTRAL MICHIGAN UNIVERSITY, MT. PLEASANT, MICHIGAN (Eunice E. Way)

48. DESCHAINE, Robert E., Jr. *Competitive fencers and beginning fencers. A comparison of lunge response times.* M.A., 1974. 32 p. (D. L. Kizer)
Lunge response times, from initiation by visual response to impact on target, were measured on 42 male fencers. The best 6–8 varsity fencers from 3 universities formed the competitive group. Students in beginning fencing classes were used for comparison. The *F* test and the Scheffé method for multiple comparisons were used to test significance. The competitive groups were found to be significantly faster. Significant differences were also indicated between some of the institutions.

49. FISCHER, Jean J. *The effects of interscholastic athletic participation on selected personality factors of freshman high school girls.* M.A., 1974. 57 p. (F. B. Koenig)
Cattell's HSPQ was given to all fresh. girls in 1 Michigan SHS upon entrance and again in the spring after opportunities to compete in 7 interscholastic and 8 intramural sports. Then 3 groups were selected on the basis of involvement: interscholastic, intramural, nonparticipant. Data were analyzed by Krushal–Wallis ANOVA, the Kolmogorov–Smirnov 2-sample test, and the Wilcoxin matched-pairs signed-ranks test. The IS group was more tough-minded and zestful than the NP group at the end of the year. During the year differences occurred within each group. IS group became less reserved, more adventurous, less individualistic, and less tense. IM group became more intelligent, more enthusiastic, and more tough-minded. The NP group was more intelligent and more enthusiastic at the end of the year.

50. MORRIS, Michael R. *Correlations and interrelationships of vertical jumping ability, running speed, agility, height, weight, and age in male university basketball players.* M.A., 1974. 33 p. (W. Sauter)
Scores of the varsity basketball team at CMU were subjected to computer analysis. Ht. had a positive relationship with wt. and negative relationships with running speed and agility. Wt. had negative relationships with running speed and agility. Running speed had a significant positive relationship with vertical jumping ability. Of particular interest to researchers is the measurement of agility.

CENTRAL WASHINGTON STATE COLLEGE, ELLENSBURG, WASHINGTON (J. M. Pearson)

51. BOATMAN, Cheryl C. *A survey of girls in grades 7, 8, and 9 of intermediate school districts 102, 103, 104, and 105 to determine the competitive activities, number of days in a week and total weeks of participation offered to girls outside of the physical education class during the school year 1972–73.* M.Ed. in Physical Education, 1974. 132 p. (D. M. Purser)

52. CONRAD, Wilbur E. *A survey of state athletic associations on participation limitations for interscholastic wrestlers*. M.Ed. in Physical Education, 1974, 161 p. (J. G. Nylander)
Information was received from 46 state athletic associations concerning conditions relative to their wrestling programs. General categories included weight classes used for competition, inseason meets, postseason tournaments, out-of-season activities, and cultural exchange programs. Increased participation in wrestling seems to exist because of fewer limitations enforced by state associations.

53. MIROSH, Richard A. *Extension of age- and performance-applicability of the Ohio State University Submaximal Cardiovascular Step Test*. M.Ed. in Physical Education, 1974, 82 p. (R. N. Irving, Jr.)
Ss ($N = 60$) from selected age levels were given the OSU Step Test and the Cameron Heartometer Test. Extension of the step test rate cadence beyond the 18th inning, a reduction of the ht. of the bench, and a comparison of athletes and nonathletes on selected variables were purposes of this study. Conclusions indicated that bench ht. reduction of 3 in. was excessive for JHS boys, that the OSU test was comparable to the Cameron Heartometer test as a quiet test, and that extra cadence added beyond the 18th inning was appropriate.

54. SMITH, Steven L. *A comparison of functional fitness among high school students as shown by selected cardiovascular variables*. M.Ed. in Physical Education, 1974, 120 p. (R. N. Irving, Jr.)
The Cameron Heartometer was used to assess the cardiovascular condition of SHS students participating in PE ($N = 22$), cross country ($N = 7$), wrestling ($N = 14$), and basketball ($N = 10$). The conditioning assessment was made at selected training intervals throughout the sport season and school year. ANOVA and ANCOVA were used to determine differences between groups and also differences between training intervals. No significant differences ($p > .05$) were found between sport groups; the PE group was significantly lower than were the sport groups; results of the study also indicated that *Ss* reached their peak of cardiovascular condition by the 6th wk of training.

CHADRON STATE COLLEGE, CHADRON, NEBRASKA

(T. P. Colgate)

55. JOHNSON, Elliot O. *A comparison of effectiveness of motivational techniques on physical performance of boys at three age levels*. M.S. in Physical Education, 1974, 60 p. (T. P. Colgate)
Success in skill performance under effects of reward, punishment, and intrinsic motivation was measured by numbers of baseballs thrown into a target bag. Over a 24-day period, 40 boys of ages 7–8, 11–12, and 14–16 received 60 throws under each form of motivation. The ANOVA of the combined $\bar{x}$'s showed that intrinsic motivation was significantly better than reward, and reward was significantly better than punishment. In group $\bar{x}$ comparisons, intrinsic motivation was significantly better than reward or punishment, but there was no significant difference between reward and punishment at ages 7–8 and 14–16. At age 11–12, no significant difference existed between intrinsic and reward motivation, but both were significantly better than punishment.

DALHOUSIE UNIVERSITY, HALIFAX, NOVA SCOTIA, CANADA

(Alexander J. Young, Jr.)

56. KAUSHAL, Khushpal. *Effectiveness of a mass communication program on selected eating behaviors in a university student cafeteria.* M.Sc. in Physical Education, 1974, 58 p. (B. S. Rushall)

Two behaviors were studied: an increase in skim milk consumption, and a reduction in food waste. The *S*s were persons eating in a university cafeteria, including summer session students, cafeteria personnel, and those people who ate on a daily cash basis. The study used a reversal design. The pretreatment and posttreatment periods included only the measurement of milk consumption and food waste; no communication program was executed during these periods. The treatment period included behavior measurement and an institution of the mass communication program. The communication techniques employed in the program were letters, posters, pamphlets, and a quiz. These contained information and feedback items. The results of the study demonstrated the effectiveness of the mass communication program in modifying the two selected behaviors in institutional settings.

EAST CAROLINA UNIVERSITY, GREENVILLE, NORTH CAROLINA

(Bob Gantt)

57. HUNLEY, Mary Jane. *The effects of a physical education program on the physical and social development of sixth grade boys and girls.* M.A. in Education, 1974, 41 p. (E. Schwarz)

Sixth grade boys ($N = 38$) and girls ($N = 36$) participated in a PE program consisting of individual sports and stunts, rhythms, team sports, aquatics, and games of low organization. Classes met 3 days weekly for 50 min each session. Pre- and posttests were given on the Oregon Motor Fitness Test and the Cowell PDS for social acceptance. A correlated t-test for M gains revealed that boys improved on sit-ups ($p < .01$) and push-ups ($p < .05$) but not on the standing broad jump. Girls failed to show significant improvement on any of the motor fitness items. M scores on the Cowell PDS were impaired for boys ($p < .01$) and not significantly different for girls.

58. JOHNSON, Barry F. *The effects of two interval training programs on circulatory-respiratory endurance and on the speed of running 440 and 880 yards.* M.A. in Physical Education, 1974, 41 p. (R. Martinez)

*S*s ($N = 8$) were randomly divided into 2 groups and pretested on the Balke-Ware Treadmill test for CVE and for time in running 440 and 880 yd. An interval training period was conducted (3 days weekly for 4 wk) with both groups running 8 repeats of 220 yd. The time-interval group began a repeat every 2 min, while the HR-interval group waited until the HR returned to 120 bpm between repeats. The Wilcoxon Signed-Ranks Test and the Mann-Whitney U Test were used to analyze posttest gains. Neither group improved significantly on the Balke-Ware Test. The HR-repeat group improved ($p < .05$) on both 440 and 880 yd running time, while the time-repeat group failed to improve. The HR-repeat group's gains were greater than the time-repeat group's gains in the 440 ($p < .05$) and the 880 ($p < .05$).

59. McDUFFIE, Richard A. *The effects of isotonic, isometric, and isokinetic exercise training programs on times of individuals running 100 yards.* M.A. in Physical Education, 1974, 25 p. (J. Grimsley)

College male *S*s ($N = 30$) were randomly assigned to either isotonic, isometric, or isokinetic exercise training groups. Following pretests on speed in a 100-yd dash, *S*s trained 4 wk (3 days/wk) on exercises to strengthen knee extension. Isotonic, and isokinetic groups performed max rep in knee extension within a 10-sec period (3 sets). The isometric group performed a max contraction (10 sec) in knee extension at angles of 112°, 135°, and 158°. Posttest scores indicated the isokinetic group ($P < .01$) and the isometric group ($P < .05$) improved in running speed. ANOVA indicated no difference existed between groups.

60. POLLARD, Regina Daniel. *The relationship of body-concept to self-concept of college women.* M.A. in Physical Education, 1974, 44 p. (E. Schwarz)
College female *Ss* ($N = 110$) were administered the Seacord-Jourard Body-Cathexis Test for determining body-concept and the Bill's Index of Adjustment and Values to determine self-concept. *Ss* were grouped according to participation in sports into: intercollegiate group ($N = 29$), intramural group ($N = 33$), or a nonorganized group ($N = 48$) that consisted of *Ss* who were not participants of an organized physical activity program. Product moment r was used in comparing body-concept with self-concept, part I (self-image); self-concept, part II (self-acceptance); self-concept, part III (ideal self-concept); and total self-concept for each group of *Ss*. The intramural group r between body-concept and self-concept, part I was +.37 ($p < .05$), self-concept, part II = +.49 ($p < .01$), and total self-concept = +.37 ($p < .05$). No other significant r's were obtained.

61. TOBIN, Richard P. *A cinematographic analysis of selected underwater saves of back dives.* M.A. in Physical Education, 1974, 83 p. (R. Martinez)
Divers ($N = 3$) who had qualified for NCAA Diving Championships were filmed, above and below the water at 64 fps, as they performed back dives from a 1-m springboard. A grid, etched into a Plexiglas panel, was placed between the diver and each camera (one above and one below the water). Both the diver and the grid were in focus. Back dives were performed by each diver; 6 using the tuck save; 6, the arch save; and 6, the drop-knee save. Each dive and save that was analyzed (3) for each diver had been selected by 10 qualified judges. Contourgraphs of 12 anatomic reference points and changes in angular velocity at 6 joints were analyzed.

62. WATTS, Phillip B. *The effects of a specificity-of-exercise training program upon cardiorespiratory endurance and maximum treadmill running performance at eight and nine miles per hour.* M.A. in Physical Education, 1974, 37 p. (J. Grimsley)
College male *Ss* ($N = 6$) were randomly divided into an 8-mph training group and a 9-mph training group. Training sessions were conducted 3 days weekly (4 wk), in which *Ss* ran to exhaustion on a treadmill at their specific training speed. Pre- and posttests were administered on the Balke-Ware Treadmill Test and for maximum running time at 8 and 9 mph. Wilcoxon-Signed Ranks Test was used to determine significance of gains, and the Mann-Whitney U Test was used to determine the significance of gains between the groups. Both groups improved on the Balke-Ware Test ($p < .05$), but the 8-mph training group made superior gains to the 9-mph group ($p < .05$). On maximum running performance at 8-mph, the 8-mph training group made significant gains (m = 5.50 min, $p < .05$), while the 9-mph training group failed to improve (m = .08 min, p = N.S.). The gains of the 8-mph training group were superior to those of the 9-mph group ($p < .05$). On maximum running performance at 9-mph, running time improved 1.46 min for the 8-mph training group and 2.42 min for the 9-mph training group. However, neither of these scores was significantly different from pretraining values.

63. WINSLOW, Timothy Clare. *A cinematographic analysis of the inward dive layout.* M.A. Ed. in Physical Education, 1974, 40 p. (R. Martinez)
Three nationally ranked college divers were filmed (64 fps) while executing inward dives (5 each) in a layout position from a 1-m springboard. Three experienced judges selected the best dive for each diver. The flight paths of the knees, hips, and shoulders of each of the 3 selected dives were plotted. Data were analyzed by a Fortran program. Major conclusion: During a diver's passage through the air, while executing an inward dive in the layout position from a 1-m springboard, it is impossible to avoid flexion at the hips. For this dive, the international and national diving committees should consider changing the definition of the layout position.

EASTERN ILLINOIS UNIVERSITY, CHARLESTON, ILLINOIS (Walter S. Lowell)

64. CRAFT, John Melvin. *The life of Dr. Maynard "Pat" O'Brien and his professional contributions to Eastern Illinois University in the areas of physical education and athletics*. M.S. in Physical Education, 1974, 52 p. (W. S. Lowell)

The study presents the background work, professional contributions, honors, and administrative and coaching accomplishments of the *S*. Data were obtained through primary source material and interviews with the *S*. and others.

65. DIECKHOFF, Terry Alan. *Effect of speed of muscle contraction on strength development*. M.S. in Physical Education, 1974, 27 p. (M. T. Woodall)

Male SHS *Ss* ($N = 65$) served in an 8-wk program of bench press exercises. The group that performed the exercise as fast as possible and the group that repeated once every 4 sec showed significant gains in strength when *t* were used to compare these groups with pretest and control group scores. Neither exp. group was significantly superior to the other.

66. EMIOLA, Monsura Lasun. *The effect of walking and jogging on selected cardiorespiratory parameters of middle-age men during the initial phase of a training program*. M.S. in Physical Education, 1974, 63 p. (M. T. Woodall)

Males (age 24–65) ($N = 28$) served as *Ss* of the study. 7 *Ss* elected to participate in a running program. The remaining *Ss* carried on normal activities. Each *S* was given a VC Balke Treadmill Test during which $\dot{V}_E$, $\dot{V}O_2$, O_2 removal R, and O_2 pulse at 150 bpm were measured. A measurement of body wt. and ht. was used to compute BSA. Following 10 wk of training, a significant difference was found between the $\dot{V}_E$ of the exp. group and the control group. Other areas showed improvement but were not statistically significant.

67. McDEVITT, Thomas E. *An analysis of the growth of professional baseball, 1955–1970*. M.S. in Physical Education, 1974, 43 p. (J. W. Sanders)

The study revealed that in 1955, of 239 professional baseball teams existing in the U.S., 30% were located in the northeastern states, 38% in the southeastern states, and 42% were in the western states. By 1960, there were 152 teams, of which 30% were in the northeastern states, 34% in the southeastern states, and 42% were in the western states. The number dropped to a low of 133 teams in 1965, with the northeastern states supporting 32%, the southeastern states 38%, and the western states 30%. By 1970, the number increased to 152 teams with 30% of the teams in the northeast, 35% in the southeast, and 35% in the west.

68. SERRA, Cecilia Velasco. *Influences of Spanish and/or African dance on five character dances of North, Central, and South America*. M.S. in Physical Education, 1974, 43 p. (H. E. Yingling)

The study revealed all 5 dances were influenced by both Spanish and African cultures with cueco and the tango showing a predominantly Spanish background. The cumbia, conga, and jazz dances had stronger African roots than Spanish. The study culminated with a dance performance choreographed by the author with 40 dancers participating.

EASTERN KENTUCKY UNIVERSITY, RICHMOND, KENTUCKY (Harold Z. Holmes, Jr.)

69. ACHTZEHN, Richard H. *The effects of rapid weight reduction on certain physiological responses of collegiate wrestlers*. Ed.S. in Physical Education, 1973, 44 p. (H. Holmes)

70. BALDINO, Frank L. *The energy expenditure of two selected weight training routines*. Ed.S. in Physical Education, 1974, 60 p. (H. Holmes)

71. BEARSE, William F. *The energy cost of playing defensive shortstop in slow-pitch softball*. Ed.S. in Physical Education, 1972, 39 p. (H. Holmes)

72. BROWN, Irvin A. *A comparison of the baseball coaching knowledge of Little League, middle league and high school baseball coaches from Lexington, Kentucky.* Ed.S. in Physical Education, 1972, 129 p. (J. Adams)

73. CLARDY, Donald B. *A study of the effects of three training programs on vertical jumping.* Ed.S. in Physical Education, 1971, 36 p. (H. Holmes)

74. CROSSFIELD, Joyce A. *The relationship of archery body/target alignment and aiming techniques to overall shooting accuracy.* Ed.S. in Physical Education, 1972, 28 p. (M. Mullins)

75. DILLARD, Samuel T. *Effects of three strength training programs on strength development.* Ed.S. in Physical Education, 1971, 62 p. (H. Holmes)

76. GIBSON, Kenneth D. *Effects of the crouch and standing starts on 25-yard dash time.* Ed.S. in Physical Education, 1973, 36 p. (H. Holmes)

77. HEMMER, John C. *A determination of the reliability and validity of the Cornish handball skill tests.* Ed.S. in Physical Education, 1972, 36 p. (F. Darling)

78. HODGES, Linda L. *A comparison of three methods of developing abdominal strength and endurance in college women.* Ed.S. in Physical [illegible]cation, 1969, 37 p. (A. E. Coleman)

79. KINNETZ, Eugene J. *The 600-yard and 12-minute run/walk tests as measures of cardiorespiratory fitness.* Ed.S. in Physical Education, 1972, 46 p. (H. Holmes)

80. KROPP, Nancy E. *Employment tendencies and the implications for professional preparation of women physical education graduates from Eastern Kentucky University.* Ed.S. in Physical Education, 1973, 89 p. (A. Uhlir)

81. LLEWELLYN, Jack H. *Effects of hand and eye dominance combinations on hitting performance.* Ed.S. in Physical Education, 1970, 48 p. (H. Holmes)

82. MAGGARD, Robert E. *The effects of an intermediate swimming course on cardiorespiratory fitness.* Ed.S. in Physical Education, 1972, 37 p. (H. Holmes)

83. McDOWELL, Herbert L. *The effects of fatigue on learning a motor skill.* Ed.S. in Physical Education, 1971, 41 p. (H. Holmes)

84. MORRELL, Lynn E. *The relationship of the brachial pulse wave and the 600-yard run/walk.* Ed.S. in Physical Education, 1971, 49 p. (H. Holmes)

85. MOTLEY, Paul C. *Effects of various physical activities on specific components of physical fitness.* Ed.S. in Physical Education, 1969, 48 p. (A. E. Coleman)

86. PARKS, Gerald L. *The effects of three methods of augmented feedback on archery performance scores.* Ed.S. in Physical Education, 1974, 41 p. (G. Polvino)

87. PRITCHETT, Rita J. *Reliability and validity of a passing skill test in women's basketball.* Ed.S. in Physical Education, 1971, 36 p. (H. Holmes)

88. TAYLOR, Richard L. *The effect of nonrelated warm-up on standing broad jump performance.* Ed.S. in Physical Education, 1972, 49 p. (J. Deck)

89. VEDELLI, Joel. *A personality study of collegiate soccer players from the state of Kentucky*. Ed.S. in Physical Education, 1974, 56 p. (H. Holmes)

90. YOUNG, Javene A. *The relationship between the girl's perception of girls' sports and the girl's projection of significant others' perception of girls' sports*. Ed.S. in Physical Education, 1972, 64 p. (P. Stanaland)

EAST STROUDSBURG STATE COLLEGE, EAST STROUDSBURG, PENNSYLVANIA (J. R. Felshin)

91. MARCUS, Barbara J. *The identification and analysis of contemporary changes in women's intercollegiate athletic programs in AIAW member schools*. M.S. in Physical Education, 1974, 247 p. (J. R. Felshin)

A questionnaire concerning the nature, extent, and sources of changes that have occurred in women's intercollegiate athletic programs from 1968 to 1973 was sent to the 329 AIAW member schools, with 141 schools responding, yielding a return of 43%. The items elicited the following information: the nature of changes; the channels employed; persons and/or organizations responsible for initiating, accomplishing, and opposing changes; problems encountered; encouragements received; major changes in programs, 1968–1973; goals for the future; and perceptions of future problems, encouragements, and requests for changes (data were also obtained concerning unsuccessful efforts for changes). Of the 141 responding schools, 133 reported having made successful efforts for changes (94%). There were 575 requests for changes, and 463 of these were granted (81%). The most frequently reported changes occurred in budget status (23%), status of sports offered (13%), and status of coaches and coaching (10%)—the 3 combined accounted for 46% of all accomplished changes.

92. SAWKA, Michael N. *A comparison of residual lung volume measurements on hydrostatic weighing specific gravity values in man*. M.S. in Physical Education, 1974, 99 p. (H. Weber)

The difference between body densities measured by the underwater weighing technique when the residual lung volume (RLV) was obtained in air and underwater was determined on 17 males between 18–39 yr. Also, the difference between body densities measured from 2 selected anthropometric prediction equations and underwater weighing when the RLV was predicted from vital capacity (VC) in air, underwater, and a constant value, was investigated. Means of RLV measured in air and underwater were significantly different at $p < .05$ as determined by the correlated t test. ANOVA followed by Scheffé's post hoc test showed significance at $p < .05$ for specific gravities between Brozek and Keys equation and Sloans equation, RLV underwater, predicted RLV from VC in air, predicted RLV from VC underwater, constant RLV, and between RLV in air and predicted RLV from VC underwater. This study indicates that RLV obtained in air is not a suitable substitute for the direct measurement of RLV underwater when accuracy is required. For surveys, a RLV predicted from the *S*s VC in air appears to be the best substitute for the direct measurement of underwater RLV.

EAST TENNESSEE STATE UNIVERSITY, JOHNSON CITY, TENNESSEE (John S. Anderson)

93. BUTCHER, James N. *The effects of spring football practice on the performance of selected strength, power, speed, and agility tests*. M.S. in Physical Education, 1974, 55 p. (J. Johnston)

94. GARLAND, James N. *The comparison of running times in the sixty-yard dash on regular grass surfaces and on artificial turf surfaces*. M.S. in Physical Education, 1974, 55 p. (S. Rice)

95. GREENE, Jane E. *The effect of three specified flexibility exercises on performance of the fifty-yard dash*. M.S. in Physical Education, 1974, 22 p. (S. Rice)

96. RAMSEY, David. *The relationship of motor ability and attitude toward physical education of high school athletes and nonathletes.* M.S. in Physical Education, 1974, 30 p. (J. Maxey)

97. REASER, David F. *Effects of selected strength training programs on cross education.* M.S. in Physical Education, 1974. (J. Johnston)

98. SCOTT, James L. *The relationship between somatotypes and the ability of high school boys to learn to swim.* M.S. in Physical Education, 1974, 23 p. (J. Maxey)

99. SHEPHERD, Donna. *The effect of an audio-slide presentation on the acquisition of beginning archery skills and knowledge.* M.S. in Physical Education, 1974, 55 p. (J. Anderson)

100. THOMAS, Charles. *An investigation of the effects of the videotape recorder on the development of the tennis serve.* M.S. in Physical Education, 1974, 27 p. (J. Maxey)

101. WATSON, Mackey D. *A biomechanical analysis of the thigh and leg-plus-foot in punting a football.* M.S. in Physical Education, 1974, 66 p. (J. Anderson)

102. WILSON, Bill L. *An investigation of the effects of the videotape machine on the shooting accuracy of beginning archery students.* M.S. in Physical Education, 1974, 35 p. (S. Rice)

103. WOOLSEY, Jerome. *The effects of a varied visual target on the acquisition of shooting accuracy in basketball.* M.S. in Physical Education, 1974. (J. Anderson)

104. YATES, Danny C. *The effects of mental practice, physical practice, and physical-mental practice on group performance of a complex team pattern.* M.S. in Physical Education, 1974, 44 p. (J. Johnston)

FLORIDA STATE UNIVERSITY, TALLAHASSEE, FLORIDA

(Jerry R. Thomas)

[See also second listing for Florida State University, p. 63]

105. ALLEN, Thomas E., Jr. *The effect of circuit weight training on cardiac output during arm and leg work.* Ph.D., 1974, 108 p. (R. Byrd)

The purpose of this study was to investigate the possibility of accruing circulorespiratory endurance related benefits from 12 wk of high resistance-low repetition circuit weight training. The parameters selected for observation were HR, cardiac output, stroke volume, systolic and diastolic blood pressure, and max vo_2. *Ss* were selected from fresh volunteers at the University of North Carolina at Wilmington who were naive to weight training and who had not participated in any form of endurance training during the 6 mo before the exp. The study ended with 33 *Ss* each in the exp. group and the control group. The training program consisted of 12 wk of heavy resistance-low repetition training. Testing was accomplished by pedaling and cranking a bicycle ergometer. Cardiac output was estimated by a co_2 rebreathing technique. It was concluded that the circuit weight training program used in this study did not provide the necessary stimulus for enhancement of circulorespiratory endurance.

106. BOSSERMAN, Larsen Zirkle. *The effect of three levels of exercise on the coronary vasculature of adolescent and adult male albino rats.* Ph.D. in Movement Sciences, 1975, 64 p. (R. J. Byrd)

Male rats ($N = 72$) were housed and trained in a treadmill modified to allow ECG monitoring of exercise work bouts. Equal numbers of adolescent and adult animals were assigned to exercise at 80% and 60% of the available heart rate range (HRR) and to control groups. At the end of a 10-wk program, changes in the capacity of the coronary arterial tree were measured. There were no differences between treatment and control groups for body wt., exercise HR, and heart wt. Exercise at 60% HRR appeared to enhance heart wt./body wt. ratio ($p < .05$), cast wt. ($p < .05$), and cast wt./heart wt. ratios ($p < .05$) in adults; 80% HRR seemed a detrimental load for this same group. No changes occurred for either treatment among adolescents.

107. BROWN, Patricia G. *Comparison of female team and individual sport secondary school athletes on traits of field independence–field dependence.* M.S. in Movement Sciences, 1974, 45 p. (D. Pargman)

The problem under investigation was to determine if differences existed among secondary school female team, individual, and multisport athletes with regard to traits of field independence–dependence. The *S* sample consisted of volunteers from 4 SHS's in Duval County, Florida. The respective schools were chosen on the basis of the existence of an interscholastic varsity female athletic program and the availability of the *S*s for testing. Those who volunteered were administered the GHFT Cf–1 which was the instrument used to measure field independence–dependence. Differences between groups were analyzed by means of the Duncan Multiple Range (DMR). The results indicated that secondary school female individual sport athletes are significantly ($p < .05$) more field independent than female team and multisport athletes. No significant differences were observed between team and multisport athletes.

108. CABRERA, Jaime M. *The effect of a season of basketball on body composition and selected cardiorespiratory parameters.* Ph.D. in Exercise Physiology, 1974. (R. Byrd)

The parameters selected for observation were: percentage body fat, resting HR, systolic and diastolic BP; steady state HR, systolic and diastolic BP, ventilation, O_2 consumption, O_2 pulse, and ventilatory equivalent; and max HR, and max $\dot{V}O_2$. Twenty basketball players were selected for this study. The season consisted of 4 wk of 5 days/wk practice sessions of an avg. of 2 hr followed by 27 games played over a period of 7 wk. All *S*s participated in a minimum of 25 games. Testing was accomplished while pedaling a bicycle ergometer at a standard workload of 750 kpm/min for 7 min after the 7th min raising the load 150 kpm/min until the *S* could not continue to pedal. max $\dot{V}O_2$ was determined by open circuit spirometry. Results indicated significant decreases in percentage body fat, resting HR, steady state exercise HR, ventilation, and ventilatory equivalent. Significant increases were observed in max HR, while no changes occurred in resting and exercise BP $\dot{V}O_2$ at steady state exercise.

109. GAINES, Leonide M. *The relationship of overpractice, initial rate of learning, and retention of a gross motor skill.* Ph.D. in Movement Science, 1974, 130 p. (R. Singer)

Following original learning (1 criterion performance) of the Front Mill Circle performed on the women's uneven parallel bars, 93 female *S*s were randomly stratified into 1 of 3 groups: control group in which *S*s received no further practice trials; 50% overpractice group in which *S*s continued practice trials until completing one-half the number of trials each needed to reach criterion; and 100% overpractice group in which *S*s continued practice trials until again completing the number of trials each originally needed to attain criterion performance. Following an 18-day retention interval, calculated individually for each *S*, practice trials were resumed and continued until each *S* demonstrated 2 criterion performances. Three measures of retention were compared: relearning to 1 criterion performance; relearning to 2 criterion performances; and both relearning scores multivariately. The obtained data were subjected to 3×3 ANOVA and MANOVA weighted means ANOVA. As expected, overpractice produced greater retention than no overpractice. However, 50% and 100% overpractice were not significantly different in their effects upon retention when measured by relearning to 1 criterion performance. Fast, average, and slow learners were equivalent in the number of trials needed to reproduce criterion performance although the data trend favored better retention by the fast learners. Interaction of the 2 variables, overlearning and rate of learning, was not evident.

110. GATCH, Wendel Holmes. *A comparison between the effect of two physical training programs on cardiovascular function of 9- and 10-year-old boys.* Ph.D. in Physical Education, 1975, 91 p. (R. J. Byrd)

Thirty-two *S*s were randomly assigned to 1 of 2 training groups (endurance and nonendurance). The endurance training group participated in a bicycling activity specifically designed and controled to produce endurance training adaptations. The nonendurance training group participated in their PE classes. Steady state exercise measurements were determined before and after training for hemodynamics, metabolic functions, and physical work capacity (PWC_{170}). Results of a multivariate ANCOVA on a selected profile of variables revealed that a difference existed between the groups after training. The most important factor contributing to this difference was O_2 pulse. Observation of simple $\bar{x}$'s indicated that this difference was a result of changes occurring within the endurance training group. In addition, a univariate ANCOVA indicated that differences between adjusted posttest means existed for the following parameters: HR, O_2 pulse, PWC_{170}, stroke index, and stroke volume. Mean values indicated that the differences were a result of changes occurring within the endurance training group. Oxygen pulse, PWC_{170}, stroke index, and stroke volume values increased while HR values decreased for the endurance training group. Similar changes were not observed for the nonendurance training group. The data demonstrated that an endurance training program is superior to a nonendurance (PE) training program in development of parameters that indicate cardiovascular efficiency in 9- and 10-yr-old males.

111. KIEFFER, Leigh F. *The relationship of trait anxiety, peer presence, task difficulty, and skill acquisition of sixth grade boys.* Ph.D. in Physical Education, 1974, 96 p. (R. N. Singer)

The State-Trait Anxiety Inventory for Children (STAIC) questionnaire was administered to a total population of 6th grade boys enrolled in one school ($N = 181$). Based on the results of the questionnaire, high-anxious ($N = 40$) and low-anxious ($N = 40$) *S*s were selected for the study. The effect of an audience and of task difficulty on learning and performance were considered in the experimental design. Two social conditions, learning in the presence of a single spectator or alone, and 2 conditions of task difficulty, hard and easy, on the pursuit rotor (PR) were employed. Data were treated with a 3-factor MANOVA. Results of the statistical analysis indicated that significant main effects due to social situation were not apparent until the last block of trials where *S*s in the spectator condition did better. State anxiety for those who performed alone was significantly higher than those who performed in the presence of a spectator over all blocks of trials. Low-anxious *S*s' overall $\bar{x}$ performance scores were higher than high-anxious *S*s scores on the hard task only during the last block of trials. Mean performance scores for both groups for the easy task proved significantly higher for the low-anxious group. Though the results of the study partially support the hypothesis of Zajonc, the majority of the results favor the theoretical hypothesis put forth by Noble, Schachter, and Wrightsman, that a spectator reduces drive and serves to console or reassure the performer.

112. MAGILL, Richard A. *The effect of the length of and activity during the postknowledge of results interval on the acquisition of a serial-motor task.* Ph.D. in Educational Psychology, 1974, 98 p. (R. N. Singer)

The post-KR interval was varied in length (12- and 60-sec) and included different forms of interpolated activity (none, counting, and tracking) for 105 college-age male *S*s. *S*s were required to learn 3 positions in serial order on a lever positioning apparatus. On each trial of the 20 trials, *S* estimated each position, received verbal KR concerning amount and direction of error for each position, and then engaged in 1 of the interpolated activities for the given interval length. Data were analyzed by using the MANOVA to consider effects on variable error. Results failed to support the hypothesis that acquisition of the task would be faster for the 12-sec interval than for the 60-sec interval. No differential effect for interpolated activity was found. The 3 positions were learned in serial order of position 1 first to position 3 last. The existence of a feed-back-KR information bank was proposed as being the result of the integration of feedback information with KR information. This construct after being formed is considered to be resistant to time and interference and is the basis for the development of a strategy by *S* for the next response.

113. POWELL, Frank. *Performance and learning of a serial motor task under conditions of related and unrelated arousal.* Ph.D. in Movement Science, 1974, 145 p. (R. Singer)

Male *Ss* ($N = 30$) and female *Ss* ($N = 30$) were randomly assigned to 5 treatment groups; a no arousal group which during initial practice performed under the ruse that no performance data were being recorded (NA1); a no arousal group which realized that performance data were being recorded (NA2); an intermediate related arousal group which received moderate shock and sound arousal contingent upon task performance (IRA); a high related arousal group which received intense shock and sound arousal contingent upon task performance (HRA); and a high unrelated arousal group which received random intense shock and sound arousal (URA). The task used was a serial manipulative apparatus which involves a sequence of familiar objects that must be manipulated. Six dependent measures were taken: total task manipulation (TTT), RT, and 4 physiological measures—HR, blood flow, skin resistance response, and EMG. Several hypotheses related to the effects of the 5 independent manipulations of arousal on the initial performance and ultimate retention of the serial motor task were supported and dicussed. Physiological indicants of arousal were monitored to provide corroborative data for between groups test of inverted U hypothesis.

114. PURCELL, Kenneth J. *The effects of a nine-week ergometer training program on stroke volume and other selected cardiovascular and respiratory functions of young women.* Ph.D. in Exercise Physiology, 1975. (D. Smith)

Physically untrained but otherwise healthy women 20–30 yr of age were randomly assigned to exp. and control groups of 14 *Ss* each. All *Ss* were pretested to determine several resting and submaximal variables, after which the exp. group *Ss* underwent training. The training program consisted of riding a bicycle ergometer at approximately 70% of the maximal HR range continuously for 18 min/session, 3 times/wk, for 9 wk. Immediately following the training program all *Ss* were posttested in a manner similar to that of the pretest. A multivariate ANCOVA and stepwise discriminant function analysis were used to determine which of several related variables contributed most to producing significantly different variable profiles between the control and exp. groups. Using these techniques steady state HR was found to be most important and AVO_2 difference 2nd in importance. Univariate ANCOVA (pretest scores were covariate measures) were used to test for differences in individual variables. PWC_{170} was significantly greater ($p < .05$) in the exp. group after training (adjusted $\bar{x}$ difference = 159 kpm/min), as was O_2 pulse (adjusted $\bar{x}$ difference = .41 ml/beat). Steady state HR decreased 8.3 bpm ($p < .05$) in the exp. group, or 6.4 bpm when adjusted for changes in the control group. Other variables did not change significantly.

115. STRANSKY, A. W. *The effects of physical training on blood volumes and selected blood components utilizing sequential measurements.* Ph.D. in Exercise Physiology, 1974. (R. Byrd)

The effects of 8 wk of physical training on sequential measurements of blood volumes, red blood cell indices, and serum ionic concentrations were observed in male white rats. The initial response to physical training was a decrease in total blood volume, mainly because of reductions in red blood cell volume. The secondary effect of physical training resulted in larger blood volumes in exercised rats. Mean cell volume and mean cell hemoglobin were found to be larger in exercised animals. The conclusion was drawn that anisocytosis occurs in exercised rats. No significant differences were observed for ionic concentrations of Ca, Cl, and Mg.

FLORIDA STATE UNIVERSITY, TALLAHASSEE, FLORIDA

(P. W. Everett)

116. CHURCH, William C. *A catalog of a core of competencies for teachers of physical education based on a theoretical model of pupil outcomes.* Ph.D. in Physical Education, 1974, 198 p. (K. D. Miller and J. Wells)

A review of the literature and a pilot study were conducted to develop the model of outcomes, identify the teacher competencies necessary for the attainment of the stated outcomes, and identify teacher behaviors that could be used as organizing elements for the competency catalog. A 35 member panel of experts rated the outcomes, competencies, and teacher behaviors. The ratings and suggestions of the panel of experts were used to place the outcomes and competencies in order of importance and to place the competencies in the appropriate teacher behavior category. The model of outcomes contained the major components of physical fitness, motor skills, and social behaviors. Fifty-three competencies were identified and placed in 1 of the 9 teacher behavior categories.

117. HARRISON, Peggy C. *The determination of the degree of relationship between teacher goals and student proficiency in selected teacher preparation courses at the University of Alabama in Birmingham.* Ph.D. in Physical Education, 1974, 160 p. (L. J. Wells and K. D. Miller)

Male and female, jr. and sr. PE majors ($N = 57$) served as *S*s. Relationships between faculty-identified minimum levels of student performance and achieved student performance, and between test performance and grades earned in the classes tested were determined. The Houdeshell Test and the AAHPER Cooperative Test were used to measure knowledge; AAHPER skill tests were used for archery, basketball, and volleyball; and separate tests were used for badminton. Significant differences ($p > .05$) between faculty-desired and student-achieved performance levels were found for all 7 areas of the Houdeshell Test, for the total test score, and for the AAHPER Test. Significant differences in desired and achieved levels were found for archery; for the 3 badminton tests; for 5 basketball tests; and for 2 volleyball skill tests. No significant differences were found for 4 of the basketball tests and 2 of the volleyball tests. Only 3 significant relationships were found between class grades and test performance; no significant relationship was found between the students' total test score and the number of theory classes taken.

118. HEESCHEN, Richard E. *The pattern of muscle activity and motion during accelerated extension of the forearm.* Ph.D. in Physical Education, 1974, 116 p. (P. W. Everett)

Signals from the biceps, 2 heads of the triceps, and an electrogoniometer were recorded on tape via a polygraph. Each analog signal was digitized by computer yielding 1 data point each msec. Forearm-hand inertia was determined and EMG signals integrated. Angular velocity (ω) and kinetic energy (E_k) were computed at msec, and angular acceleration (α) at 10 msec intervals. Males ($N = 12$) performed forearm extension from 65° to 180° in the horizontal plane with loads of 0, 250, 500, 1000, and 1500 g. Movement terminated by striking a pad. Values for ω and α were 2 to 4 times those found elsewhere. Until validity of electrogoniometry at msec intervals is established and comarative data available, these values should be viewed conservatively. However, the general pattern of IEMG and motion agreed with the literature permitting these conclusions: movement began 93 msec (average) after muscle activity; the elastic component of muscle enabled the velocity of the moving part to surpass the velocity of muscular contraction; maximum ω occurred within 60°–70° of movement irrespective of load; maximum ω decreased with time to attain it increased with increased load. No linear relationship between IEMG and E_k was found.

119. LOWERY, Mildred A. *The effects of two levels of overlearning a fine motor task on the retention of fast and slow learners.* Ph.D. in Physical Education, 1974, 116 p. (K. D. Miller)

Seventh and 8th grade female students ($N = 64$) served as *S*s for this investigation. *S*s were randomly assigned to 1 of 3 degrees of learning—100% learning, 100% overlearning, and 200% overlearning. The assignment of *S*s to speed of learning groups was based on the number of trials required to reach the learning criterion of a minimum of 14 sec on target on one 20-sec practice trial. *S*s were classified as fast or slow learners on the basis of percentiles, with those above the 60th percentile being classified as fast learners and those below the 40th percentile being classified as slow learners. Retention was measured using absolute recall, relearning, saving, and percent of saving. The retention test was administered within 28 to 30 days after original learning. The data were analyzed by the use of a 2×3 multivariate statistical design with overlearning and speed of learning serving as the 2 factors. Conclusions were: significant differences ($p > .05$) occurred in retention between slow and fast learners for the retention measures of recall, relearning, and saving score; significance was found in retention between *S*s with 0% overlearning and 100% overlearning for both ability groups when the methods of relearning, saving score, and percent of saving were used to measure retention; significant differences occurred in retention between *S*s with 0% and 200% overlearning and 100% and 200% overlearning for both ability groups for all measures of retention; and there was a significant interaction between speed of learning and overlearning when retention was measured by the relearning method.

120. PORTELA-SUAREZ, Jose M. *An evaluation of the physical education in the public secondary schools of Puerto Rico.* Ph.D. in Physical Education, 1974, 251 p. (K. D. Miller)
A survey technique was used to obtain the data from 2 randomly selected SHS in each of the 6 education regions in Puerto Rico. Section 4–13 of Evaluative Criteria of the National Study of Secondary School Evaluation was used as the evaluative instrument for assessing the boys and girls PE programs, with specific reference to 5 basic areas—organization, nature of offerings, physical facilities, direction of learning, and outcomes. Section 10 was also selected to analyze the conditions which affect the teaching-learning process. The assessment of the 5 areas was totaled, average scores obtained and ratings assigned. The results were: organization—average score of 2.26—rating, fair; nature of offerings—average score of 1.96—rating, poor; physical facilities—average score of 1.49—rating, poor; direction of learning—average score of 2.55—rating, fair; and outcomes—average score of 2.36—rating, fair. From these facts it was determined that the total physical education program needed a great amount of improvement in all areas in order to physically educate the students for present and future needs.

121. THOMAS, Nelson E. *An investigation of learning plateaus in gross motor skills.* Ph.D. in Physical Education, 1974, 140 p. (K. D. Miller)
Ss ($N = 31$) were enrolled in 2 sections of beginning golf classes at Florida State University. The *Ss* were randomly divided into 2 exp. groups: group A used the simple-to-difficult practice method and group B used the difficult-to-simple method of practice. Each exp. group was subdivided into 2 treatment groups: treatment P was learning to putt and treatment S was learning the full swing. The *Ss* were given a total of 21 trials. Each trial consisted of putting or hitting 10 balls from a specified distance into a series of concentric circles with each circle assigned a specific value. The scores of each trial were recorded from which $\bar{x}$ were calculated and plotted on graphs, thus depicting learning curves. A multivariate analysis of the data revealed: a plateau occurred in group A, treatment S; the 2 different practice methods did not significantly affect performance; and the 2 different practice methods did not affect skill acquisition.

122. TORO-SEDA, Sonia. *Professional preparation guidelines in physical education for classroom teachers in the elementary schools of Puerto Rico.* Ph.D. in Physical Education, 1974, 224 p. (K. D. Miller)
Designing guidelines for the preservice training of ELE classroom teachers in PE in Puerto Rico involved 3 preliminary requirements: reporting current practices in professional preparation for ELE classroom teachers in Puerto Rico; determining the present program in ELE school PE in Puerto Rico; and determining the generally accepted criteria for quality programs in ELE school PE in the U.S. Data were obtained from: the general director of PE and the dean of each School of Education studied in Puerto Rico; questionnaires responded to by ELE school teachers of Puerto Rico; and literature concerning practices and programs of PE in the U.S. From the latter, a formulation of criteria characteristic of quality programs in PE was determined. The criteria, evaluated and ranked by a jury of experts from the U.S., fell into 7 categories: leadership, purposes and goals, instructional program, organization and administration, facilities and equipment, evaluation, and school related programs. From the validated criteria and the information concerning current practices in professional preparation and current programs in Puerto Rico, guidelines were established as a basis for recommended experiences during the preservice education of ELE school classroom teachers of PE in Puerto Rico.

123. WARNOCK, Ronald E. *A comparative analysis of the effects of various rest intervals following formal warm-up upon strength, speed and power.* Ph.D. in Physical Education, 1974, 138 p. (P. W. Everett)
Rest intervals of 2, 4, 6, 8, 10, 12, 14, and 16 min following a 5-min formal warm-up upon grip strength, speed in running the 50-yd dash, and leg power as determined by the vertical jump were used. Athletes from Miami-Dade Community College were used as *Ss*. There were no differences in performance of grip strength following various intervals of rest after a formal warm-up. There were significant differences ($p > .05$) in performance of running the 50-yd dash following a formal warm-up between the 4- and 6-min rest intervals and all other intervals of rest; the 8- and 10-min rest intervals and the rest intervals of 2, 14, and 16 min; the 12-min rest interval and the rest intervals of 2 and 16 min; and the 8-min rest interval and the 12-min rest interval. There were significant differences ($p > .05$) in vertical jump performance following a formal warm-up between the 4-min rest interval and the rest intervals of 6, 8, 14, and 16 min; and the 2-min and 16-min rest intervals.

124. WEBER, John A. *The use of psycho-motor tests in determining potential wrestling ability among college age men.* M.S. in Physical Education, 1974, 74 p. (H. D. Loucks)

GEORGE PEABODY COLLEGE FOR TEACHERS, NASHVILLE, TENNESSEE (Merritt Graves)

125. REAGAN, Larry Gay. *Teacher and student attitude changes as a result of an experimental health education program.* D.Ed. in Health and Physical Education, 1974, 100 p. (L. Garrett)

Changes in teacher preparation and teacher behavior were evaluated. The population for the study included teachers ($N = 40$) and students ($N = 400$) from school systems in selected counties of Tennessee. Twenty teachers and 200 students comprised the exp. group and an equal number made up the control group. The exp. group of teachers received 5 health training sessions. ANOVA was used to assess the success of the program using pre- and posttest scores on the *Byrd Health Attitude Scale*, the *Minnesota Teacher Attitude Inventory*, and the *Elementary Health Behavior Inventory*. ($p < .05$) Teacher and student attitudes toward health, as measured by the BHAS, were significantly affected by teacher participation in the exp. program. The differences between exp. and control groups on the BHAS and the EBI were significant. Teacher attitudes as measured by the MTAI were not significantly affected by participation in the program.

INDIANA UNIVERSITY (see page 123)

KANSAS STATE UNIVERSITY, MANHATTAN, KANSAS (C. Corbin)

126. GANN, Roy A. *Comparison of active and inactive women in the performance of the vertical jump and selected characteristics of isokinetic time-force curves.* M.S. in Health, Physical Education and Recreation, 1974, 30 p. (M. Noble)

127. KELLER, Ronald G. *The overt sportsmanship attitude responses of college, high school, and junior high school male athletes.* M.S. in Health, Physical Education and Recreation, 1974, 59 p. (R. Wauthier)

128. RUTHERFORD, William J. *The effects of an emotional stimulation on submaximal exercise heart rate.* M.S. in Health, Physical Education and Recreation, 1974, 52 p. (C. Corbin)

129. SANDERS, Diane M. *Effects of right and left handed instructions on the learning and motor performance of right and left handed subjects.* M.S. in Health, Physical Education and Recreation, 1974, 53 p. (C. Corbin)

130. WALLACE, Karen E. *Cinematographic analysis of mechanical differences in the vertical jump that occur through learning.* M.S. in Health, Physical Education and Recreation, 1974, 64 p. (C. Corbin)

LAMAR UNIVERSITY, BEAUMONT, TEXAS (Mary J. Haskins)

131. BLANSIT, Frankie. *A comparison of the effects of two different physical activities on cardiovascular efficiency of college women.* M.S. in Physical Education. 1974, 45 p. (M. J. Haskins)

The Scubic-Hodgkins Cardiovascular Efficiency Test was administered to college women in badminton, volleyball, and conditioning classes. No significant differences were found on initial testing. Both conditioning and sports groups showed significant gains, with no significant differences between groups on final testing. It was concluded that cardiovascular efficiency of college women can be improved significantly by participation in a sports program as well as conditioning program.

132. BURKHAMMER, Billy L. *A comparison of a written psychological anxiety test with the number of turnovers in a basketball pressure situation.* M.S. in Physical Education, 1973, 34 p. (M. J. Haskins)
Scores on the State-Trait Anxiety Inventory were compared with average turnovers in district play. Pressure situations were designated as those with 5 points or less difference in scores. Significant relationships were found between STAI scores and turnovers in games won ($p < .05$), and turnovers in pressure situations overall ($p < .10$). Relationships were not significant in games lost. The significance of differences between high and low anxiety subjects was $p = .09$ overall and $p = .03$ in games won, not significant in games lost.

133. COMEAUX, Barbara A. *Development of a volleyball selection test battery for girls.* M.S. in Physical Education, 1974, 70 p. (M. J. Haskins)
A test battery was developed which would assist in team selection at the SHS level. Measures of experience, the serve, and agility comprised the final battery. Weighted battery scores provided a multiple r of .69.

134. GRAVES, Judith M. *The effectiveness of the instant videotape recorder in teaching the tennis serve.* M.S. in Physical Education, 1973, 39 p. (M. J. Haskins)
Form, speed, and accuracy of the serve were evaluated. Exp. group (using videotape recorder) was superior in form and speed. Both groups improved in form and speed and declined in accuracy. No significant differences between groups on improvement although exp. group was gaining in form. It was concluded the videotape recorder is beneficial in teaching the tennis serve; accuracy is not a factor in a successful service at the beginning level and may reflect an inverse relationship.

135. SMITH, Richard. *An evaluation of the modified Brace Motor Ability Test, as applied to mental retardates with IQ's of twenty to fifty.* M.S. in Physical Education, 1972, 40 p. (M. J. Haskins)
The modified Brace Motor Ability Test appears to be applicable to students with low IQ's, test retest provided a reliability of $r = .97$. No apparent relationship existed between IQ and performance ($r = .12$, $r = .13$). A significant relationship was found to exist between age and performance ($r = .69$) indicating the older retardate performed with more skill.

136. WIGGAM, Jo Ellen. *The incidence rate of sickle cell anemia and sickle cell trait in grades one through twelve of the Beaumont independent school district and the South Park independent school district during the academic school year 1972–1973.* M.S. in Physical Education, 1974, 153 p. (A. C. Bell)
Data were collected, treated, and analyzed in order to determine the incidence rate of sickle cell anemia and sickle cell trait in approximately 9,000 negro students in grades 1 through 12 of the Beaumont and South Park Independent School Districts. The hemoglobin electrophoresis test was used for the screening. A total of 7 students were reported with sickle cell anemia. The study revealed the incidence rate of abnormal hemoglobin in 926 students, and 11 various abnormal hemoglobin combinations. There was an incidence rate of hemoglobin S in 726 students.

LOUISIANA STATE UNIVERSITY, BATON ROUGE, LOUISIANA

(Jack K. Nelson)

137. LEE, Eva J. *The validity of a submaximal cardiovascular step test for women.* Ed.D. in Physical Education, 1974, 97 p. (J. K. Nelson)
A step test consisting of stepping up and down on a 17-in. bench was given to 30 conditioned adult women. The test had a maximum of 5 phases with 6 innings in each phase. An inning consisted of 30-sec stepping and 20 sec of rest, during which the pulse was counted for 10 sec. The cadences were 16, 20, and 24 steps/min for the first 3 phases and 24 steps/min for the 4th and 5th. *S*s continued stepping until a HR of 168 was reached. The inning in which a HR of 150 was reached was also noted. Validity criteria were max VO_2 and the Balke Treadmill test. The target HR of 150 correlated significantly with both validity criteria while the 168 HR correlated significantly only with the Balke test. There was almost no relationship between the 2 validity criteria. It was concluded that with conditioned *S*s, the capacity for max work as measured by VO_2 is more effectively predicted by light to moderate work, whereas, prediction of max work by the Balke test requires more strenuous exercise.

138. SMITH, Richard J. *Effects of varying exercise stress upon skin temperature during exercise and through recovery*. Ed.D. in Physical Education, 1974, 107 p. (R. E. Steben)
Skin temp. readings at 7 body locations were taken on 30 high fitness and 30 low fitness male *Ss* before exercise, at exercise HRs of 120, 140, 160, and 180, and every 3 min during a 30-min recovery period. The *Ss* walked on a treadmill at 4 mph at a 20% grade. Skin temp. was measured by a Barnes radiometer. Split-plot ANOVA and curvilinear regression were used in the analysis of data. It was found that low fitness *Ss* had lower skin temp. readings than the high fitness *Ss* when exercise reached max levels. The high fitness *Ss* had higher skin temp. during recovery than the low fit *Ss*. The body temp. site which best distinguished high and low fitness during moderate to strenuous exercise and during recovery was the palm.

MANKATO STATE COLLEGE, MANKATO, MINNESOTA (R. B. Moore)

139. STONEBURNER, Richard L. *Individualized instruction vs group instruction in teaching of basic tumbling skills*. M.A. in Physical Education, 1974, (R. D. Clayton)
Seven basic tumbling skills (forward roll, backward roll, backward extension, cartwheel, headstand, headspring, handspring) were taught to 53 6th grade students at Roosevelt Elementary School, Mankato, Minnesota. Two intact classes were used, 1 randomly designated as the exp. class (individualized instruction), the other as the control class (group instruction). Cognitive and skill pretests indicted no significant difference between the $\bar{x}$ point totals of the 2 groups. Fourteen class periods, 30 min in length, were used to complete the study (10 days for instruction and 4 days for testing). The $\bar{x}$ comparisons of the point totals between the pretest and posttest showed significant improvement within each group on skill and cognitive aspects. The $\bar{x}$ comparisons of the point totals between the individualized instruction class and the group instruction class showed no significant difference in either of the areas tested.

MARSHALL UNIVERSITY, HUNTINGTON, WEST VIRGINIA (B. Hammond)

140. HASKETT, Sherry L. *Alterations in the muscle strength of intercollegiate wrestlers during the season*. M.S., 1974, 70 p. (P. Eisenman)

141. JOSTEN, Barbara. *A history of women's intercollegiate athletics at Marshall University*. M.S., 1974, 81 p. (B. Barnett)

142. PALMER, Thomas C. *The effect of an ingested alkaline solution on the performance time of trained and untrained swimmers in the 100-yard freestyle*. M.S., 1974, 40 p. (P. Eisenman)

MIDDLE TENNESSEE STATE UNIVERSITY, MURFREESBORO, TENNESSEE (G. Penny)

143. DEAR, Edward Charles. *A teaching instrument, programmed to facilitate cognitive learning in a selected undergraduate physical education activity course*. Doctor of Arts in Physical Education, 1974, 123 p. (F. Riel)
An eclectic style programed text was developed to enable students to learn cognitive information concerning skill of a specific physical activity outside the classroom thus maximizing class time for participation in skills. The programed text was tested with 93 nonmajor male and female students and 22 male PE majors. Four evaluative procedures were used: 90/90 criteria, pre- and posttest and results, time analysis, and a questionnaire requiring a yes–no response and a section for remarks. The results: 89/87 criteria, pre- and posttests, significant ($p < .001$), and time analysis revealed a $\bar{x}$ of 75.1 and a range of 35 to 300 min to complete the programed text.

144. FISHER, George D. *An evaluation of the undergraduate professional preparation program in physical education at Austin Peay State University.* Doctor of Arts in Physical Education, 1974, 131 p. (G. Penny)

The perceived adequacy of preparation compared to importance of preparation for sequence teaching roles of 87 Austin Peay State University graduates from 1960–69 was evaluated by a questionnaire designed by Lucke. The following 5 specific categories of preparation were evaluated: service programs, athletics, intramurals, principles and philosophy, and administration. Pearson *r* was used to determine relationships between adequacy and importance of preparation. Significant *r*'s between adequacy and importance of preparation were realized for athletics, intramurals, and principles and philosophy. The *S*s indicated inadequacy in evaluation procedures, scheduling practices, and a weakness in teaching techniques related to individual differences in children.

145. GLASS, Allen F. *A comparison of the traditional and pass/fail grading systems in selected university physical education activity courses.* Doctor of Arts in Physical Education. 1974, 109 p. (P. McClellan)

Students enrolled in 3 activity courses ($N = 116$) were given the opportunity to select either the traditional or pass/fail grading system. The Wear Attitude Test and the Spielberger, Gorsuch, and Lushene Anxiety Test were given to all *S*s, pre- and posttest. Each class was given a different skill test; team games class, the Harvard Step Test; circuit training class, the bench press and the 12-min run/walk test; and tennis class, the Dyer Tennis Test. Fixed A × B factorial ANOVA with repeated measurements were performed on pre- and posttest data. Pearson *r* was computed between the Harvard Step Test and the Wear Attitude Test and the Spielberger Anxiety Test. The study revealed that traditional grading as compared to pass/fail grading does not increase the skill level or attitude of students; furthermore, it does not reduce the anxiety of the students.

146. GUDGER, Garlan Edward. *A teaching instrument to facilitate behavioral modifications in beginning golfers.* Doctor of Arts in Physical Education, 1974, 443 p. (F. Riel)

A comprehensive research of traditional textbook material provided the content for each of the 20 lessons on golf. Behavior modification objectives were set forth in each lesson and were validated by use of Ralph Mager's content developmental validity testing process using 80–80 criteria for basis of acceptance. After revision all lessons met at least 80–80 criterion. The behavior modification objectives were tested on 5 beginning golf classes randomly selected, with the lottery method being used to select test groups for Mager's method. The end product was an instrument developed in 20 lessons, progressing from the simple to the more complex within the framework of skill progression of the activity in golf. The lessons are developed independent of each other so that individual weaknesses may be improved during the student's learning progression, but when taken as a complete unit of instruction, each lesson can work to identify the overall behavioral modifications that should take place.

147. HAYES, Janice O. *The development of a psychographic profile of the female health, physical education, and recreation major.* Doctor of Arts in Physical Education, 1974, 113 p. (M. Chambers)

Female majors ($N = 51$) in HPER were used to measure selected traits and the degree of existence of those traits in comparison to the norms of the standardized tests. Tests were: Lee-Thorpe-OII, Allport-Vernon-Lindzey SV, Otis SATMA, Wear PEAS, Scott-MAT, cardioefficiency test, somatotype evaluations, and Cornell Index for Health. Using the HPER GPA as the independent variable, Flanagan-Kelley *r*'s were determined between GPA and the aforementioned tests for traits. Significant *r*'s were indicated for ACT composite scores, natural interests (Lee-Thorpe OII), cardioefficiency, psychological health (Cornell Index), intellectual aptitude (Otis SATMA), aesthetic

values (Allport-Vernon-Lindzey SV), and general motor ability (Scott-MAT). Significant negative *r* was obtained for business and computational interests as measured by the Lee-Thorpe OII. A psychographic profile using standard scores was developed to display the measured traits of the 51 *S*s and the degree of existence of measured traits in comparison to the norms of the standardized tests.

148. LaLANCE, Robert C., Jr. *A comparison of traditional instruction, mental practice, and combined physical-mental practice upon the learning of selected motor skills.* Doctor of Arts in Physical Education. 1974, 125 p. (S. Hall)

Students ($N = 46$) enrolled in 3 handball classes were assigned traditional instruction, mental practice, or combined physical-mental practice as independent variables in a study of these variables on the power and lob service in handball. Students ($N = 14$) who were not involved in physical activity courses served as the control group. All *S*s were administered a modified version of the Pennington HBT and the Iowa-Brace Test for Motor Educability. After a 5.5-wk period of instructions with 1 of the aforementioned methods, the *S*s were retested on the modified Pennington HBT. ANOVA was computed on pre/post scores for the 4 groups. The Iowa-Brace Test scores were correlated with the pre- to posttest difference scores of the Pennington Test to determine predictability of learning the handball service. Pearson *r* was used to determine the extent of correlation between these measures. The results indicated no significant effects of the instruction methods on the power service, but traditional instruction was significantly superior to mental practice for teaching the lob service. There was no evidence to support the ability of the Iowa-Brace Test to predict improvement in either the power or lob service in handball.

149. MILLER, Clara E. *A comparison of the attitudes toward physical education of selected undergraduate students.* Doctor of Arts in Physical Education, 1974, 64 p. (M. Chambers)

The Wear PEAI was administered to 1,223 MTSU students enrolled in PE activity classes to determine if attitudes toward PE changed after 1 semester of PE. Form A of the Wear Test was administered for the pretest and form B for the posttest. ANOVA was used to analyze male-female data, fresh., soph., jr., sr. data, and individual-dual sports classes and team sports classes. A random sample of 100 *S*s was selected and a *t* test was computed between pre- and posttest to determine if an attitude change occurred after a semester of PE. The findings were: no significant differences between males or females or between individual-dual sports and team sports in regard to attitudes toward PE, and no significant change in attitude from the beginning to the end of the semester.

150. SCOTT, Nancy C. *An evaluation of the undergraduate professional program in physical education at Middle Tennessee State University.* Doctor of Arts in Physical Education. 1974, 139 p. (J. Barber)

The Bookwalter-Dollgener Score Card (3rd ed.) was used to evaluate the undergraduate professional program in PE at MTSU. Interviews, observations, and personal research were used to collect the data. The raw total score and raw area scores were converted to national percentile equivalents. Percents of attainment were computed for items, subareas, and areas and the total institutional score. These were compared to national percents of attainment to determine the need for short range program improvements. Total institutional score was 674.5 or 67.4% of attainment which was 1.3% above the national $\bar{x}$. Library-audio-visual had the highest national percentile equivalent, while the teaching act had the lowest national percentile equivalent. An item analysis revealed 100% of attainment for 159 of the 318 score card components, and 71 score card items had a percent of attainment below 50%. Recommendations for program improvement were made on the basis of the 71 score card items which had a percent of attainment below 50%.

NEW YORK UNIVERSITY, NEW YORK, NEW YORK (Charles A. Bucher)

151. MALMUD, Nacmi Baumgarten. *The effect of knowledge of specific performance standards for grade achievement on the archery performance of community college students.* Ph.D., 1973, 114 p. (R. Brown)

Early in a 7.5 wk archery course, the exp. *Ss* were told the specific performance standards that would have to be achieved at the end of the course in order to receive performance grades A to D. The control *Ss* were given the general exhortation of "do your best" after being told that their final performance scores would be evaluated in comparison with the scores of all students taking archery that semester. ANCOVA revealed that the male exp. *Ss* showed significantly better archery performance over a 6-wk training period than did the male control *Ss*, while no such treatment effect occurred for the female *Ss*.

NORTH CAROLINA CENTRAL UNIVERSITY, DURHAM, NORTH CAROLINA (Ross E. Townes)

152. BAKER, Evelyn Carolyn. *A proposed program for a major in physical education at Virginia Union University.* M.S. in Physical Education, 1974, 65 p. (R. E. Townes)

A comparative table of the standards and guidelines recommended by selected state departments of education and documentary frequency tables were constructed to ascertain the percentage of agreement of authorities in the field in regard to the objectives of a major program; the competencies required of a major; the general education, the general professional education, and the specialized professional education course experiences; the foundation science courses; the skills courses; and the practicum experiences a major should have to develop the requisite competencies. For the item to be accepted as a standard, 50% or more of agreement among authorities in the field on an item was necessary.

153. HANDY, Albert E. *A comparative analysis of the water method and the non-water method of conditioning competitive swimmers.* M.S. in Physical Education, 1975, 73 p. (R. E. Townes)

Swimmers ($N = 10$) at Westbury High School in New York were divided into 2 matched groups. One group was subjected to a 9-wk non-water conditioning program, and the other group was subjected to a 9-wk water conditioning program. The 2 groups of *Ss* were pretested and posttested on the Marine Corp Physical Fitness Test, and on the 50, 100, 200, and 400-yd free style and 100-yd back stroke and 100-yd breast stroke. The non-water conditioning group exceeded the water conditioning group in achieving physical fitness as measured by the Marine Corp Physical Fitness Test. Pretest and posttest scores of the non-water conditioning group show significant improvement ($p < .001$), and pretest and posttest scores of the water conditioning group showed significant improvement ($p < .01$). Posttest scores of the non-water conditioning group and the water conditioning group showed no significant difference between the 2 groups.

154. HARVIN, Charles L., Sr. *A comparison of the physical fitness of white male tenth grade and black male tenth grade students.* M.S. in Physical Education, 1974, 50 p. (R. E. Townes)

Fifty white male 10th grade students and 50 black male 10th grade students were administered the AAHPER Youth Fitness Test and compared. Analysis of the results indicated that the black students were superior to the white students in all areas measured by the instrument with the exception of abdominal strength. There was a significant difference between the 2 groups ($p < .01$).

155. KINSEY, Doris Marie. *A study of the differences between the group cohesion of athletic groups and non-athletic groups.* M.S. in Physical Education, 1974, 56 p. (R. E. Townes)
The Functional Choice Test was administered to a sample of 20 athletes, 28 choir members, and 19 band members at Whitted JHS in Durham, North Carolina. The group cohesion score, total choices minus total rejections divided by n times $n-1$, was determined for each group. The group cohesion scores for the athletic group, band group, and choir group were .071, .044, and .053, respectively. A perfect score is 1.00; therefore, the athletic group had the highest group cohesion of the 3 groups. There were 2 rejections in the athletic group, 2 in the band group, and 1 rejection in the choir group. While there were differences among the 3 group cohesion scores, this difference was not statistically significant ($p > .025$). The choir group had the greatest percentage of cohesiveness, and the band group had the least percentage of cohesiveness. The percentages were 49, 45, and 26, respectively.

156. LOVETT, Gus A. *A comparison of the physical fitness of white male seventh grade and black male seventh grade students.* M.S. in Physical Education, 1974, 50 p. (R. E. Townes)
White male 7th grade students ($N = 50$) and black male 7th grade students ($N = 50$) were administered the AAHPER Youth Fitness Test and compared. An analysis of the results indicated that the black students enrolled in PE classes were better in all areas measured by the instrument with the exception of endurance and arm strength. There was not a significant difference between the 2 groups ($p > .05$).

157. MITCHELL, Ira I. *Two selected methods of judging varsity basketball players' ability.* M.S. in Physical Education, 1974, 36 p. (R. E. Townes)
A study was conducted in which 16 varisty basketball players participated. They were tested for ability by using a skill test and were subjectively judged by themselves and their peers. The skill test administered was the C. W. Money Basketball Ability Test. Subjective judgment was determined by the Mitchell Balloting Frequency Scale. As a group, the subjects scored well above the 50th percentile on the skill test. The greatest range of scores occurred on the Mitchell Balloting Frequency Scale. There was "little or no" relationship between basketball playing ability, as determined by the skill test, and basketball playing ability, as determined by the players' judgment.

158. NEDD, Brenda S. *A study of professional preparation in physical education in selected institutions in Alabama.* M.S. in Physical Education, 1974, 48 p. (R. E. Townes)
A survey was conducted of 4 selected institutions in Alabama. The Bookwalter Dollgener Score Card for Evaluating Undergraduate Professional Programs in PE was administered in an effort to determine the status of the institutions' programs. The Institutions were accredited by the Southern Association of Colleges and Schools. They were found to be strongest in student services and curriculum policies and practices and weakest in supplies and equipment, outdoor facilities, and general institutional and departmental practices.

159. THOMPSON, Raymond M. *A study of youth opinions of teenage recreation programs of seniors in two selected high schools in the city of Burlington, North Carolina.* M.S. in Physical Education, 1974, 46 p. (R. E. Townes)
A questionnaire was administered to 575 seniors in 2 HS's in Burlington; 451 questionnaires were completed and were used. The opinions of these students were summarized and categorized as a means of determining the opinions of teenagers about the recreation programs in the city of Burlington, North Carolina. They preferred swimming, team sports, parties, dances, and movies, and ranked gymnasiums, snack bars, swimming pools, juke boxes, game rooms and theaters as top facilities preferred. The majority of the students rated the public recreation centers they knew about as generally favorable.

160. YOUNG, Jimmie L. *A comparative study to determine the difference between the effectiveness of teaching beginning tennis skills by the traditional method and the individualized learning method.* M.S. in Physical Education, 1974, 38 p. (R. E. Townes)
Two samples of 15 students were taught beginning tennis skills, 1 by the traditional method and 1 by the individualized method. Each group received instruction for 10 wk, 50 min, 5 days/wk. The *S*s were tested after the 10-wk period on knowledge, forehand, backhand, serve, and the Dyer test. The traditional group's gain scores on the knowledge test ranged from 14–54. The $\bar{x}$ score was 31.86, the SD was 12.11, and the standard error was 3.13. The individualized instruction group's gain scores on the knowledge test ranged from 24–58. The $\bar{x}$ was 44.60, the SD was 9.21, and the standard error was 2.38. There was no significant difference between the 2 methods using the Dyer test. The individualized group was significantly superior ($p < .01$) on the serve and also significantly superior ($p < .03$) on the knowledge test.

NORTH TEXAS STATE UNIVERSITY, DENTON, TEXAS (Robert W. Patton)

161. CATE, Susan Carol. *The effect of the tonic neck reflex upon fatigue of the extensor leg muscles.* M.S. in Physical Education, 1974, 62 p. (C. George)
The *S*s were college females enrolled in PE activity classes at North Texas State University. The *F* ratio was used to determine significance of the difference in fatigue measures in the 3 head positions. The results revealed no statistically significant difference between the 3 head positions with respect to their influence on endurance of the leg extensors. Conclusion was that the tonic neck reflex does not facilitate or inhibit leg extensor endurance.

162. CHEW, Suzann S. *The relationship between dynamic balance and rhythm.* M.S. in Physical Education, 1974, 55 p. (S. Rice)
Fifth and 6th grade students ($N = 152$) were given the Nelson Balance Test and an adaptation of Ashton's Practical Rhythm Test. The Pearson *r* was used in the statistical analysis of the data. The reliability of the tests used was very low. The relationship between dynamic balance and rhythm was .08, which was not a reliable *r*. No conclusions could be drawn because of the unreliability of the *r*. It was recommended that improved measures of dynamic balance and rhyrhm be constructed for ELE age children.

OHIO STATE UNIVERSITY, COLUMBUS, OHIO (J. Herkowitz)

163. AHRENS, Shirley J. *Quantification of three-dimensional space utilization in unstructured human movement.* Ph.D. in Physical Education, 1974, 150 p. (L. Hess)
A method for measuring and analyzing 3-dimensional space use was developed and validated using a 2-camera videotape system. Data were collected from 21 college men and women. Each *S* was administered 5 trials of an improvised movement task. The quantitative measures devised for the space use analysis included linear distance traveled, level change, level range, percent of possible floor grid shifts, percent of enterable grid squares entered, and floor pattern range. Reliability estimates ($p < .01$) for the analysis procedures were obtained using repeated measures ANOVA techniques. Reliability estimates of the 6 space use measures using the interclass *r* were all high except for floor pattern range. There were no trend effects across the trials. Validity coefficients were very high on 5 of the 6 space use measures when compared with criterion group performances.

164. BEVERIDGE, Sandy K. *The relationships among motor creativity, movement satisfaction, and the utilization of certain movement factors of second grade children.* P[illegible]hysical Education, 1973, 122 p. (M. Mordy)

165. BOEHM, John H. *The effects of a competency-based teaching program on junior high school physical education student teachers and their pupils.* Ph.D. in Physical Education, 1974, 186 p. (D. Siedentop)

Specific student teacher and pupil behaviors were analyzed for differences between rates and percentages during baseline and after competency-based intervention. At the time of intervention, 8 student teachers were given a package of materials that consisted of 5 modules: planning, interpersonal relationships, instructional feedback, management, and student assessment. Specific techniques used by the experimenter to modify student teacher rates included graphic feedback in the form of a weekly feedback chart, goal setting, cuing, and reinforcement. By means of a multiple baseline design, behavior rates, behavior percentages, and management time during baseline and intervention were compared. Package intervention plus graphic feedback, goal setting, cuing, and reinforcement were found effective in changing the rates of negative behavior interactions, number of first names, number of instructional feedbacks, and instructional feedback directed to individuals.

166. BURSON, James F. *Developing a systematic procedure for basketball film analysis and utilization.* Ph.D. in Physical Education, 1973, 186 p. (R. Bartels)

167. CAFFREY, Garret P. *The physiological effects of chronic heavy physical training on male age group swimmers.* Ph.D. in Physical Education, 1974, 177 p. (R. Bartels)

While exercising on a bicycle ergometer, HR and pulmonary ventilation were monitored and aerobic and anaerobic power were measured on 13 male age group swimmers to determine the effectiveness of a chronic heavy physical training program. The exp. swimming group trained 6 days/wk, with more than 1 workout/day not uncommon. The principles of interval training were employed in conjunction with high intensity swimming. Total distances approaching 12,000 m were periodically covered in 1 day. In addition, total body strength was assessed by 3 cable tensiometer measurements and body composition was predicted from 2 skinfold measurements. A matched control group was also tested. Swimmers significantly exceeded the control group in vo_2 max ($p < .001$) alactacid capacity ($p < .02$) and max pulmonary ventilation ($p < .05$). However, the intensive training program did not statistically alter these variables in the swimmers. Results reveal the considerable adaptation of the O_2 transport system maintained by these athletes throughout the entire training year. No difference was found between the swimmers and the control group in total strength or body composition but because of the high caloric expenditure involved in chronic heavy physical training, the swimmers exhibited a significant reduction ($p < .01$) in percent body fat.

168. CAL, Jimmie L. *The effects of interval bench stepping on the metabolic energy mechanisms.* Ph.D. in Physical Education, 1973, 69 p. (R. Bartels)

169. CAMPBELL, Mary Jo. *The effects of traditional and contingency management methods on performance in selected volleyball skills.* Ph.D. in Physical Education, 1973, 112 p. (D. Siedentop)

170. CLARK, William J. *Development and validation of a basketball potential skill test.* Ph.D. in Physical Education, 1973, 138 p. (D. Matthews)

171. CONOVER, Darlene K. *Object preference and resulting movement behaviors of three-to-seven-year-old custodial and trainable retarded boys.* Ph.D. in Physical Education, 1973, 197 p. (W. Ersing)

Institutionalized TMR boys ($N = 11$) were exposed to 5 objects (ball, blocks, climber, inner tube, wagon) to determine object preference and the types of movement behaviors exhibited. Data collection was divided into 2 parts. The 1st, object familiarization, introduced each *S*s to each object to reduce familiarity/novelty effects. The 2nd, object preference, determined which object was most preferred when all objects were presented simultaneously. A factorial ANOVA procedure indicated that *S*s, a group, displayed no preference ($p > .05$). Individual *S*s, however, did demonstrate a preference. Positive significant *r*'s were found ($p < .01$) between motor age and time spent with all objects combined. A positive *r* ($p < .01$) was found for IQ and time spent with wagon. Movement behaviors most exhibited were: head—resting; hands—manipulating; arms—holding, lifting, pushing; legs—walking; trunk—sitting. Movement behaviors occurring most often and for the greatest length of the time were quite inactive, repetitious, and sedentary in nature. If development of retarded children is to be enhanced, not only must the environment be equipped with selected objects, but use of such objects must be ensured.

172. CONRY, Barbara J. *An existential-phenomenological view of the lived body.* Ph.D. in Physical Education, 1974, (S. Kleinman)

173. DARST, Paul W. *The effects of a competency-based intervention on student-teacher and pupil behavior.* (D. Siedentop)

The effects of a competency-based intervention on 9 categories of 7 ELE PE student teachers and 3 categories of pupil behavior in their respective classes were determined. The behaviors were observed during baseline and intervention conditions through event, duration, time sample, and placheck observation techniques. Data were converted to rates per minute and percentages and analyzed by a multiple baseline design. The categories of teacher behavior were: general and specific positive reactions to on-task pupil behavior, negative reactions to off-task pupil behavior, general and specific positive instructional feedback, general and specific corrective instructional feedback, pupil contacts using the pupil's first name, and the direction of all feedback. The categories of pupil behavior were: appropriate/inappropriate, active/inactive, and management time. Intervention consisted of competency-based modules, instructions, cuing, reinforcement, graphic feedback, and goal setting. Results of the study indicated that the observation system exerted a measure of accountable control on the *S*s' behavior and the pupils' behavior. The majority of *S*s made significant gains in the behavior categories of general and specific positive reactions to on-task pupil behavior, instructional feedback, first name usage, and direction feedback. Five of the *S*s made significant reductions in the negative reactions category. All of the *S*s' classes made significant gains in pupil behavior.

174. DIEHL, Pamela S. *Effects of a seaon of training on selected physiological parameters in female college basketball players.* Ph.D. in Physical Education, 1974, 108 p. (E. Fox)

Nine volunteers from the OSU women's BB team were tested pretraining (I), precompetition (II), and postcompetition (III) on the following: body composition (ht., wt., skinfolds); strength (tensiometer—ankle plantar, hip, shoulder flexion); power (vertical jump); and submaximal and maximal work-effort ($\dot{V}O_2$, HR, $\dot{V}_E$, $\dot{V}O_2/\dot{V}_E$). Monthly hematological tests of CBC, SeFe, TIBC, serum cholesterol, and triglyceride were obtained. Athletic involvement included practice 5 day/wk, 2 hr/day from 10/23/73 to 3/7/74, weight training 3 day/wk from 10/23/74 to 12/12/74, 12 season and 3 postseason games. Significant changes in body composition ($p < .05$) reflected greater LBM-to-fat ratio, with no concomitant weight change. Hip and shoulder flexion tests indicated significant ($p < .05$) strength increases between tests I and II, I and III, but not between II and III. Vertical jump distances and derived power scores were significantly ($p < .05$) greater in tests II and III than in I, but not between tests II and III ($p < .05$). Cardiorespiratory response to submaximal effort improved ($p < .05$) between tests I and III as reflected by HR, $\dot{V}O_2$(ml/kg and l/min), $\dot{V}_E$, and $\dot{V}O_2/\dot{V}_E$. Max $\dot{V}O_2$ (l/min and ml/kg) did not significantly change ($p < .05$) during the study. Hematological determinations were insufficient to warrant statistical analysis, although no adverse trends were revealed.

175. DREIDAME, Ruth E. *A survey of the organization and administration of women's intercollegiate athletic programs in the 1973–74 AIAW active member schools.* Ph.D. in Physical Education, 1974, (M. Mordy)

176. FAHEY, Brian W. *Women in sport: An existential analysis.* Ph.D. in Physical Education, 1973, 183 p. (S. Kleinman)

177. GONINO, Vincent J. *The history and development of the Huntington Memorial Outdoor Center, Raquette Lake, New York, State University of New York College at Cortland.* Ph.D. in Physical Education, 1973, 283 p. (C. Mand)

178. GORMAN, Patricia J. *An investigation of the relationships between selected variables and success in performance of the American Red Cross lifesaving carries.* Ph.D. in Physical Education, 1974, 147 p. (R. Bartels)

SHS and college *Ss* ($N = 44$) were tested on 8 predictive variables. The carries were timed by stopwatch and evaluated by 3 teachers of lifesaving using checklists. Data were placed into a correlational matrix to determine relationships between and among the variables and the carries. Two stepwise multiple regression treatments identified variables with maximum predictability and provided predictive equations. Levels of performance were characterized by mean times for 25-yd distances of each carry and checklist scores with maximum possible of 30. An equation based upon the first 2 variables predicted scores with optimum accuracy and constituted a valid prerequisite test possessing administrative feasibility.

179. HALL, Sydney O. *The role of physical education in the nation-building process in Kenya.* Ph.D. in Physical Education, 1973, 356 p. (B. Bennett)

180. HAMILTON, Keith E. *The application of a competency-based model to physical education student teaching in high school.* Ph.D. in Physical Education, 1974. (D. Siedentop)

181. HODGES, Patrick B. *A study of physical education in public two-year colleges in the Midwest United States.* Ph.D. in Physical Education, 1973, 191 p. (M. Mordy)

A 3-page questionnaire was sent to 238 public 2-yr colleges. The 11 states that took part in the study were Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Ohio, West Virginia, and Wisconsin. A 72% return rate was obtained. The data collected were analyzed 4 ways: for all cooperating colleges; for colleges categorized as community colleges, university branches or extensions, and technical or vocational colleges; for community or junior colleges subdivided into 3 enrollments groups based on student population; and for each of 11 states. Percent analysis methods were used to treat the data. PE was found to be an integral part of the total curriculum at public 2-yr colleges; 73% had a service program, 53% had a professional program, 84% had an intramural program, and 78% had an intercollegiate program. Only 18 colleges did not have any type of PE program. Six of these had plans to begin in the next 3 yr.

182. HUBER, Joseph H. *The effects of a token economy program on appropriate behavior and motor task performance of educable mentally retarded children in adapted physical education.* Ph.D. in Physical Education, 1974, 157 p. (W. Ersing)

The *Ss* were 11 members of an EMR class located within a hard-core inner-city school. To improve the level of appropriate behavior and the number of tasks completed, the teacher conducted a token economy program during 4 wk of a 6-wk exp. period. The levels of appropriate behavior and the number of motor tasks completed during baseline and intervention sessions were compared by means of a reversal design. Reinforcement directly applied to appropriate behavior resulted in behavior improvement and an increase in the level of motor task performance above the baseline 1 level. Contingencies structured for motor task performance caused a minimal positive change in appropriate behavior while the number of motor tasks completed declined when compared to baseline levels. When reinforcement was completed a significant increase in the level of appropriate behavior occurred. However, the reinforcement was not of sufficient strength to increase the level of motor task performance above the baseline 2 level.

183. HUGHLEY, Carey. *Modification of teaching behaviors in physical education.* Ph.D. in Physical Education, 1973, 91 p. (D Siedentop)
Information feedback was given to 4 student teachers. Eight categories of teaching behaviors were defined which allowed 85% interobserver agreement. Behavior observations were made using a 5-min event recording technique. A multiple baseline design was employed to determine the effect of feedback on selected behaviors. Very low stable baseline rates of less than 1 event/min were found for all categories except input and monitoring. After intervention, changes occurred in desired directions for the majority of categories. Baselines for the major categories indicated that the intervention was the cause of behavior changes. Results indicated that beginning PE student teachers are likely to emit very low rates of positive or negative feedback. Directed information feedback proved effective in producing teaching behavior changes in PE student teachers. Beginning teachers primarily emitted negative behaviors and increases in positive behaviors did not always cause a decrease in negative behaviors.

184. HURLBURT, Lavern F. *The objectives of interscholastic athletics for boys in central Ohio as perceived by societal publics of different community types.* Ph.D. in Physical Education, 1973, 240 p. (D. Siedentop)

185. JEREMIAH, Maryalyce. *Ohio school health education study: Status of the school health instruction program in Ohio's public secondary schools.* Ph.D. in Health Education, 1973, 120 p. (M. Beyrer)

186. KEARNEY, June F. *The history of women's intercollegiate athletics in Ohio—1945–1972.* Ph.D. in Physical Education, 1973, 168 p. (L. Morris)
This study records the development of women's sports in Ohio colleges and universities, identifies outstanding leaders who have contributed significantly to the development of women's competition, identifies and records significant events that comprised the historic growth of women's intercollegiate competition, and attempts to draw conclusions regarding future directions and problems of intercollegiate competition in Ohio. The study included considerations of basketball, volleyball, golf, tennis, bowling, and competitive sychronized swimming. Information regarding competition was collected from interviews with persons directly involved with specific programs of intercollegiate athletics for women, from minutes, bylaws, policy statements, and constitutions of relevant organizations, and other literature.

187. KENNEDY, Peter E. *The life and professional contributions of Robert Herman Kiphuth to Yale and competitive swimming.* Ph.D. in Physical Education, 1973, 370 p. (B. Bennett)

188. LADD, Wayne M. *The Athletic Institute: A study of an organization and its effect on and reflection of the development of sport, recreation and physical education in the United States.* Ph.D. in Physical Education, 1974, 245 p. (B. Bennett)
Employing the historical method, the author used primary sources such as Institute documents including minutes and correspondence, Institute products such as publications and audiovisuals, and evaluations of the Institute through interviews, correspondence and editorials. The research indicated that the Institute has offered commendable and diverse services to the field such as the sponsorship of educational conferences, the promotion of a national recreation program and the development of various audiovisual materials. There were occasions, however, when the actions of the Institute appeared to be self-serving for industry representatives who backed the organization. Nevertheless, in consideration of its general contributions to the field, the Institute has served as an excellent example of how private industry can cooperate with social institutions to produce benefits for society.

189. LEIGH, Mary H. *The evolution of women's participation in the summer Olympic games, 1900–48.* Ph.D. in Physical Education, 1974. (B. Bennett)

190. LEWIS, Robert W. *Sport and fiction of John Updike and Philip Roth.* Ph.D. in Physical Education, 1973, 198 p. (S. Kleinman)

191. LUMPKIN, Angela. *The contributions of women to the history of competitive tennis in the United States (1874–1974)*. Ph.D. in Physical Education, 1974, 232 p. (B. Bennett)
Former players, such as Hazel Wightman, USLTA officials, and others involved with tennis as well as tennis records, player biographies, and tennis periodicals obtained from the USLTA and the National Lawn Tennis Hall of Fame contributed the historical information for this study. Women's progress in and contribution to tennis during the past 100 yr, though often neglected, was fully acknowledged and recognized. Originally, a woman's leisurely pasttime, tennis became a nationally recognized sport in the early 1900's. Promotion by women in the East and in California expanded the quality and extent of women's play. Women players were contributors in fashion throughout the years as they supported the greater freedom of movement allowed them. Not until the 1960's and 1970's did any women tennis players lead in the national women's rights movements. Tennis was one of the early competitive sports offered and allowed women in colleges. Currently, with professional tennis, women have attained a prestigious status, never before enjoyed by them in tennis. Partly as a result of the increased exposure of professional women's tennis, the entire sport is experiencing a tremendous popularity boom.

192. MAGLISCHO, Ernest W. *The relationship of personality to achievement in age group swimming*. Ph.D. in Physical Education, 1974. (B. Bartels)

193. MERTLER, Carol S. *The use of behavior modification techniques in a sport environment*. Ph.D. in Physical Education, 1974. (D. Siedentop)

194. MITCHELSON, Edward B. *An analysis of the relationship between programs of physical education and intercollegiate athletics in the CIAU*. Ph.D. in Physical Education, 1973, 281 p. (L. Hess)

195. MORGAN, Marcia R. *A comparison of selected personality, biographical, and motivational traits among women athletes, physicians, and attorneys*. Ph.D. in Physical Education, 1973, 147 p. (L. Morris)

196. PARK, Sung J. *Physical education and sport as an instrument of nation-building in the Republic of Korea*. Ph.D. in Physical Education, 1974, (B. Bennett)
Written source materials, and personal interviews with political and educational leaders and students provided the information considered. PE and sport have been used as a means to promote national ideology, nationalism, the spirit of unity, international prestige, and international relations. Leaders have focused their efforts and resources on the development of athletic programs for national and international competition and have neglected the development of sport and PE for the total population of Korea. The country lacks an adequate quantity and quality of teaching personnel, programs, funds, or facilities.

197. PERIES, Vincent P. *Submaximal cardiovascular endurance of trainable mentally retarded boys*. Ph.D. in Physical Education, 1973, 89 p. (B. Bartels)

198. PRATT, Robert L. *The concept of play in American physical education*. Ph.D. in Physical Education, 1973, 206 p. (B. Bennett)

199. RIFE, Frank N. *The modifications of student teacher behavior and its effects upon pupil behavior*. Ph.D. in Physical Education, 1974, 90 p. (D. Siedentop)
Behaviors were recorded on both the student teachers and their pupils before and after an intervention of modeling and graphic feedback. The multiple-baseline deisgn was used to determine causal relationships. Four student teachers and the pupils in their public school classes were the sources of information. Event recordings were performed in 10 single-minute intervals upon the student teachers' behaviors. Planned activity checks (placheck) were used to record pupil behavior. Intervention techniques produced significant changes in the selected student teacher behaviors with the exception of the management category. These changes had a very positive effect upon appropriate/inappropriate pupil behavior and a mixed effect upon pupil response latency. This study emphasized the importance of modeling and revealed that behaviorally defined feedback to student teachers can produce significant changes in student teaching behavior.

200. ROBINSON, Pamela S. *The physiological effects of chronic heavy physical training on female age group swimmers*. Ph.D. in Physical Education, 1974, (B. Bartels)

201. SCHLEGEL, Ronald P. *Multidimensional measurement and structure of attitudes toward smoking marijuana with prediction of marijuana use*. Ph.D. in Health Education, 1973. 187 p. (W. Cushman)

202. SOMERVILLE, John T. *A study of beliefs held by former football players concerning their college football experiences*. Ph.D. in Physical Education, 1973, 223 p. (B. Bartels)

203. THOMPSON, Donna. *Selected dimensions of space as criteria for the selection of (playground) equipment for children in an outdoor learning environment*. Ph.D. in Physical Education, 1974, 226 p. (M. Mordy)

Kindergarten boys ($N = 12$) played on 3 pieces of nonmoving equipment: wooden pilings, horizontal bars, and a geodesic dome. Movement was measured by the usage of the spatial dimensions of range, direction, and level and by bases of support as the body factor to determine which piece produced the greatest variety in each dimension and in bases of support. Photographic slides of the 12 *S*s, in groups of 4, were taken simultaneously by 4 Nikkon motorized F-36 cameras at 5-sec intervals while they moved on the equipment. A flatbed coordinate digitizer plotted the movements of the body parts from raw images into an accurate 2-dimensional Cartesian coordinate system. Computer programs transformed data into a 3-dimensional system from which measurements were taken. Data were analyzed by using a 3-factor repeated measure ANOVA, binomial proportions tests, Scheffés tests, Kendall r, Wilcoxin T, and χ^2. Results were significant ($p < .05$). The bars elicited the greatest amount of range of movement. The pilings stimulated the most right, left, up, and down directional moves. The dome promoted more movement at a high level. Bases of support used were independent of the pieces of equipment used. This study provided evidence that a framework for analyzing movement using Laban's spatial dimensions and the body factor of bases of support is appropriate. It also provided a photographic technique and computer programs to analyze movement in 3 dimensions.

204. WALTER, Janet L. *The effects of instruction as a secondary task load on skill in an eye-hand coordination task*. Ph.D. in Physical Education, 1974, (D. Siedentop)

Observations of movement control, perceptual behavior, and attention were noted during the performance of 2 tasks simultaneously. Initial ability levels were ascertained in each separate task, and performance decrements were recorded during dual task performance. The relationship of initial ability and performance decrement were observed. *S*s were randomly selected and assigned from 5th grade students who performed high, medium, or low on a continuous ball-tapping task. In addition, *S*s responded to a red signal light, while tapping, by stepping on a foot switch. At this point a secondary task was initiated in 1 of 3 forms: previous instruction, audio, or visual instructions. *S*s were signaled to orient left or right toward 1 of 3 light poles 22 ft. apart. A 3×3 factorial design was employed with 1 factor the performance level and the other the instructional input. The results of multivariate ANOVA showed a significant F ratio among performance levels, but no difference on secondary tasks's influence. At the low and intermediate levels *S*s did better with audio input rather than a memorized sequence.

205. YOEST, Elmer W. *Relationships between cardiovascular fitness and selected body measurements of eighth grade boys and college men*. Ph.D. in Physical Education, 1973, 48 p. (R. Bartels)

JHS boys ($N = 51$) and college males ($N = 43$) were selected from PE classes. The measurements determined on each group were age, ht., wt., skinfold at the triceps, midaxillary, and juxto nipple areas, body density, percent body fat, LBM, and body surface area. The OSU step test was administered to both groups. Pearson r was used to determine the relationship of body measurements to step test performance. The factors of body composition, principally indicators of percent body fat, significantly limited ($p < .05$) the college *S*s step performance, but not that of the JHS boys. The findings indicate that the *S*s, adolescent or adult, who possess larger percentages of LBM registered higher scores on the step test.

206. YOUNG, Richard M. *The effects of various reinforcement contingencies on a second grade physical education class*. Ph.D. in Physical Education, 1973, 128 p. (L. Hess)

207. ZINGALE, Donald Paul. *A history of the involvement of the American presidency in school and college physical education and sports during the twentieth century*. Ph.D. in Physical Education, 1973, 230 p. (B. Bennett)

OKLAHOMA STATE UNIVERSITY, STILLWATER, OKLAHOMA

(A. B. Harrison)

208. ADRIAN, Phillip D. *Athletic participation in high school sports: A spatial analysis*. Ed.D. in Higher Education, 1974, 106 p. (J. Rooney)

Data on participation in boys' interscholastic sports on the national level were obtained from the National Federation of State High School Associations. Participation patterns were analyzed on a geographical basis. Trends in participation were observed by looking at data from 1953, 1962, and 1971. The upper Midwest showed the greatest participation level. The Southwestern states and highly urbanized states provided low participation opportunities. Trends indicated that there is an increasing number of sports being offered and that participation in individual sports increased faster than that in team sports.

209. BARKER, Gene A. *The relationship between total leisure behavior of persons within selected Oklahoma communities and the success of high school football and basketball programs in their communities*. Ed.D. in Higher Education, 1974, 105 p. (J. Rooney)

A stratified hierarchical geographic method of sampling was used to collect interview data from 50 *S*s in each of 6 selected communities. Success of football and basketball programs was determined by won-loss record. In these communities, leisure activity seemed to be a function of facilities available and to a lesser extent, tradition. There was no consistent pattern which would relate high involvement in football or basketball programs with amount of time devoted to other recreational activities. Expected relationships between recreational resources and HS sports programs were not apparent in these study sites.

210. CHRISTIAN, Ronald G. *The contributions of selected variables to college football performance*. Ed.D. in Higher Education, 1974, 90 p. (A. B. Harrison)

Thirty varsity football players at Southwestern Oklahoma State University served as *S*s. Game percentage scores (GPS) were determined for each *S* by the author and coach, through film analysis following each game. Twelve tests were administered to the *S*s before the season. These included fitness, motor skill, and IQ type tests. For all *S*s the VJ and 12-min run resulted in a multiple r of .60 with GPS. Backs and linemen apparently need to be considered separately since 6 variables produced a multiple r with GPS of .95 for linemen, while 9 variables produced a multiple r with GPS of .72 for backs.

211. EDWARDS, Thurman. *An evaluation of the undergraduate professional preparation programs in physical education in Oklahoma's Junior Colleges*. Ed.D. in Higher Education, 1974, 172 p. (J. Bayless)

Fifteen Oklahoma junior colleges were evaluated by personal visitation and the use of a modified Bookwalter and Dollgener scorecard.

212. HUNTER, Mary P. *The relationship of cigarette consumption and upper respiratory disease among college students*. Ed.D. in Higher Education, 1974, 122 p. (A. B. Harrison)

All students in medical technology, health, and PE activity classes ($N = 323$) at Tulsa Junior College acted as *S*s for this study. Data on smoking habits and knowledge were acquired by written inventory. Reports of occurrences of upper respiratory illnesses were obtained from teachers of all classes for a 12-wk period. Smokers, regardless of amount consumed, experienced significantly more upper respiratory illness than nonsmokers. Students in medical programs (primarily nursing) had the same percentage of smokers as students in other programs and also experienced approximately the same number of respiratory illnesses.

213. LAURIE, David. *A study comparing the lecture method and tutorial (slide-tape) method of instruction for a health class unit on physical fitness*. Ed.D. in Higher Education, 1974, 93 p. (B. Abercrombie)

Students ($N = 99$) in personal and community health classes were randomly assigned to exp. or control groups. All *S*s were given a 100-item multiple choice pretest on physical fitness knowledge. The control *S*s attended a series of 12 classroom lectures while the exp. *S*s obtained the material at their convenience from Caramate (slide-tape) machices in the library. The same test was used as a posttest. An ANCOVA indicated no significant difference in learning between the 2 groups.

OLD DOMINION UNIVERSITY, NORFOLK, VIRGINIA (M. H. Williams)

214. KNIGHT, Julia P. *A comparison of selected isokinetic training velocities on the development of muscular power in college women*. M.S. in Physical Education, 1974, 108 p. (G. George)

College females ($N = 75$) were matched into 4 equal groups according to the average of their pretest scores on the Vertical Power Jump Test (VPJT) and the Power Staircase Test (PST). Group I served as the control group, while all 3 of the exp. groups performed the same isokinetic exercise at different preset rates of speed for 6 wk. Groups II, III, and IV worked at the selected rates of .8, 2.3, and 3.9 in./sec, respectively. An ANCOVA was used to determine the effect to the predetermined isokinetic speeds on the performance of leg power on both power tests. A Pearson *r* was calculated to determine the relationship which existed between the VPJT and the PST. The main findings of this study were: the 3 different preset isokinetic rates of speed significantly improved muscular power in the ankle-knee-hip extensor groups; although all 3 selected isokinetic speeds improved leg power, no 1 speed was significantly more effective as revealed by the results on the 3 power tests; and the VPJT and the PST correlated for the measurement of muscular power by the ankle-knee-hip extensor muscle groups ($p < .01$).

215. PERKINS, Roberta J. *The effect of various doses of caffeine upon the maximal muscular endurance of college females*. M.S. in Physical Education, 1974, 65 p. (M. H. Williams)

Subjects were 14 female undergraduate students. Before undertaking a standardized progressive workload to exhaustion on an electric bicycle ergometer, each *S* consumed either a placebo, small (4 mg/kg), medium (7 mg/kg), or large (10 mg/kg) dose of caffeine; the order of administration of the dosages was counterbalanced. A double-blind procedure was followed. Mean times, to exhaustion for the placebo, small medium and large dosages of caffeine were, respectively, 299.5, 312.1, 299.8, and 303.2 sec. Max HR were, respectively, 183.4, 185.0, 185.4, and 184.4. Maximal rates of perceived exertion (RPE) were 16.6, 17.0, 16.3, and 17.1. The ANOVA revealed no significant differences between the drug trials for the above 3 parameters; in addition, no significant differences were noted for the resting HR, submaximal HR, and submaximal RPE. Within the limitations of this study, the following conclusion appears to be warranted: a small, moderate, or large dose of caffeine exerted no significant effect upon max endurance time, RHR, SHR, MHR, or RPE at either submaximal or maximal workloads.

216. THOMAS, CHARLES L. *The effects of variant cardiac stress on the peripheral eosinophil count*. M.S. in Physical Education, 1972, 88 p. (M. H. Williams)

Nine male volunteer students served as *S*s. There were 4 trials, a control and 3 separate workloads, on an electric bicycle ergometer designed to elicit HR responses of 100–110, 130–140, and 160–170. For each trial, each subject received 4 venipunctures; immediately before performance, immediately after performance, 30 min after performance, and 1 hr after performance. The investigation involved a repeated measures design with the trials for each *S* determined by random selection. ANOVA was used to evaluate the effect of variant levels of cardiac stress and time on the exp. parameters. Within the limits of this study, the following conclusions were made: the 3 variant cardiac stress levels did not significantly affect the absolute or differential eosinophil counts, and the 3 levels of cardiac stress were found to cause an immediate posttest significant increase in the hemoglobin concentration, the hematocrit count, and the leukocyte count.

217. THOMPSON, Rachel A. *A comparison of the perceptual and motor abilities of learning disabled and normal students at ages eleven and twelve*. M.S. in Education, 1971, (M. H. Williams)

Fifteen learning disabled students and 15 normal achievers, all age 11 or 12, were tested on the Bender Gestalt Test (BGT), the Six Category Gross Motor Test (SCGMT), and the Purdue Perceptual Motor Survey (PPMS). Test scores for the 2 groups were compared using independent group tests. Results revealed a difference ($p < .05$) for performance on the SCGMT and the PPMS; difference in performance on the BGT was significant ($p < .10$). All differences favored the normal group. Pearson r coefficients were also computed to determine relationships existing among the tests. Within the limitations of this study, the following conclusions were made: the perceptual-motor abilities of learning disabled students are significantly inferior to those of normal students; there is a significant relationship among the visual-perceptual and gross perceptual-motor abilities measured by the BGT, the SCGMT, and the PPMS; and there is a greater relationship among the various perceptual-motor abilities in the learning disabled student than in the normal student.

218. YOUNG, Lynne. *A comparison of tactile reaction time in blind and sighted subjects*. M.S. in Physical Education, 1971, 63 p. (G. George)

Two groups matched by chronological age and sex were tested for reaction time to a tactile stimulus using a tactile stumulus unit and a sophisticated reaction timer. The sighted group and the congenitally blind group each totaled 30 subjects; total $N = 60$. Each S was given a 10-trial practice session and a 20-trial test immediately following the pretest practice. Analysis of the data by t test revealed a statistically significant difference favoring the congenitally blind ($p < .01$). Since under the limitations of the study the only difference between the 2 groups was the blindness and the related unique lifestyle of the blind group, it was concluded that blindness, its related unique lifestyle, or a combination of the 2 produced an improved tactile reaction time.

PORTLAND STATE UNIVERSITY, PORTLAND, OREGON (Milan Svoboda)

219. NORAINE, Gordon L. *The effects of training at two specified intensities upon heart rate response to submaximal exercise*. MST in Health and Physical Education, 1972, 47 p. (M. Svoboda)

PURDUE UNIVERSITY, WEST LAFAYETTE, INDIANA (C. J. Widule)

220. BUNDY, David W. *Performance of kindergarten children on two measures of field-dependence-independence and a selected movement task*. M.S. thesis, 1974, 81 p. (H. M. Smith)

Ss ($N = 40$) between ages 5 yr 5 mo and 6 yr 5 mo were administered 3 tests: CEFT, PRFT, and GBBT. Dynamic balance subtests (2) yielded significant r at the .05 with PRFT. Sex differences were evident only for the eyes-closed condition during GBBT (.05 level) and the PRFT, with boys scoring significantly better than girls (showing less field dependence).

221. HALLER, Marjorie Mara. *The relationship between sex-role stereotypes and the stereotypes of male and female athletes*. M.S. thesis, 1974, 239 p. (H. M. Smith)

Ss were male and female college students ($N = 120$). A questionnaire consisting of 52 bipolar adjectives describing personality traits on a 7-interval, Likert-type scale was administered. ANOVA ($2 \times 2 \times 2$) was performed on each item. When significant F ratios were indicated, Newman-Keuls SRT was used to test for significance between pairs of $\bar{x}$'s. Definite stereotypes seem to exist for each classification, and males and females differ in ratings for 15 items.

222. HUDSON, Jackie Lee. *A computerized cinematographical analysis of college women in the basketball one-handed free throw*. M.S. thesis, 1974, 132 p. (C. J. Widule)

Three mutually exclusive groups of college women basketball players were filmed during performance of the 1-handed basketball free throw. The *S*s were members of a beginning level basketball instructional activity class at Purdue University ($N = 9$), members of the Purdue University women's varsity basketball team ($N = 7$), and members of the U.S. women's basketball team for the 1973 World University Games ($N = 9$). ANOVA procedures were used to determine if the groups exhibited differences in any of 10 biomechanical measurements or shooting accuracy. Stepwise regression methods were used to predict the shooter's accuracy percentage and the likelihood of making a given shot. Stepwise discriminant procedures were used to predict the group to which each *S* should belong.

223. MERSEREAU, Michele Rae. *A cinematographic analysis of the development of the running pattern of female infants at 22 and 25 months of age*. M.S. thesis, 1974, 164 p. (G. E. Garrett)

Four female *S*s were filmed at age 22 mo and age 25 mo. Data obtained from the film were used to calculate various biomechanical variables. A subproblem was to investigate the effect of general motor development, as measured by the Bayley Scale of Infant Motor Development, on the development of running. Developmental trends were identified for kinetic energy values of the segments of the right lower extremity, the kinetic energy of the total body, the instantaneous horizontal component of velocity of the body center of gravity, stride length, the time in flight during 1 running stride, and the proportionate duration of time spent in flight during 1 running stride. Kinetic energy appeared as a particularly useful indicator of the developmental change in the running pattern of female infants at 22 and 25 mo of age. A slight relationship was found between running speed and general motor development as measured by the BSIMD.

224. ULIBARRI, Vera Dianne. *A cinematographical analysis of mechanical and anthropometric characteristics of highly skilled and average skilled female sprinters*. M.S. thesis, 1974, 88 p. (G. E. Garrett)

Film data were quantified using a graph pen in conjunction with the IMLAC minicomputer. KINAL, a computer program in use at Purdue University, was used to analyze the data. Analyses of center of gravity, angular, and linear velocities, segmental inclinations, and kinetic energy for the total body and a distribution of the kinetic energy for each segment were computed for each frame analyzed. ANOVA procedures were used to test for differences between the groups for selected positions of the right and left legs during 1 stride. The groups differed significantly on 22 variables related to segmental inclination, angular velocity, and kinetic energy. Tests of lean body mass, stride length, stride rate, and lengths of legs resulted in no significant differences between the 2 groups. Since the differences in inclinations, angular velocity, and kinetic energy did not support one another, the conclusion was that there were no differences between the 2 groups on the variables selected for study.

SAN DIEGO STATE UNIVERSITY, SAN DIEGO, CALIFORNIA

(Paul Governali)

225. BERGER, Alexander C. *Relationship of kicking game to selected performance variables of San Diego County high school football teams*. M.A. in Physical Education, 1973, 85 p. (A. Sucec)

226. CATES, David A. *A history of golf at California State University, San Diego from 1936 to 1972*. M.A. in Physical Education, 1973, 144 p. (P. Governali)

227. FREY, Richard Dennis. *Selected sociopsychological characteristics of hockey, rugby, and soccer players*. M.A. in Physical Education, 1973, 132 p. (D. Selder)

228. JOOS, David D. *A history of soccer at Acadia University in Nova Scotia, Canada: 1876 to 1967*. M.A. in Physical Education, 1973, 143 p. (P. Governali)

229. VERNER, William S. *A history of tennis at San Diego State University from 1921 to 1973.* M.A. in Physical Education, 1973, 171 p. (P. Governali)

SLIPPERY ROCK STATE COLLEGE, SLIPPERY ROCK, PENNSYLVANIA (Bradley F. Keith)

230. MURRAY, Robert. *The effect of sugar on the strength of the latissimus dorsi muscle.* M.Ed. in Physical Education, 1973, 24 p. (W. Hotchkiss)

The latissimus dorsi muscles of 16 male college competitive swimmers were tested to determine the effect ingesting sugar has upon latissimus dorsi strength. No significant differences in strength were found after ingestion of sugar.

231. WILSON, Cheryl K. *Rate of acquisition of locomotor skills of preschool children and trainable mentally retarded children through individually prescribed instruction.* M.Ed. in Physical Education, 1974, 116 p. (D. Auxter)

The rate of acquisition of locomotor skills by 14 preschool children, ranging in age from 2 to 4 yr, and 16 TMR children, ranging in age from 7 to 15 yr, was measured within an Individually Prescribed Instructional (IPI) system and a traditional instructional system. The skills investigated were ladder-climbing, stair-climbing, galloping, hopping, jumping, and sliding. A hierarchial sequence of learning activities devised for each locomotor skill allowed assessment of the rate of acquisition. The data collected from each *S* over a 10-wk testing period were analyzed with the *t*-test for independent samples, using .05 as the level of significance. It was found that among the preschool population, the skills of stair-climbing and jumping were highly improved under the IPI system while the skills of ladder-climbing, galloping, hopping, and sliding failed to gain a high level of achievement. Among the TMR population however, all of the skills with the exception of hopping developed markedly under the IPI system.

SMITH COLLEGE, NORTHAMPTON, MASSACHUSETTS (Marcia R. Morgan)

232. CHAFFEE, Judith B. *Understanding modern dance choreography through a study of the creative process in the arts.* M.S. in Physical Education, 1974, 75 p. (M. R. Morgan)

This study is an attempt to familiarize the dancer and teacher with the creative aspect of modern dance choreography through artists' and philosophers' analyses of various stages and conditions of the creative process in the fine arts. It includes a compilation of artists' descriptions of their processes of creating in painting, music, poetry, sculpture, drama, and modern dance.

233. DAVIS, Susan P. *A study of the effectiveness of systematic desensitization techniques in reducing the effects of fear of beginning riders.* M.S. in Physical Education, 1974, 164 p. (P. D. Downie)

Male and female undergraduate students ($N = 18$) participated in a 6-wk study. Each *S* completed the 108-item Fear Survey Schedule (FSS), the IPAT Self-Analysis Form, and a case study questionnaire. *S*s were divided into 2 groups, high anxious and low anxious, according to the group $\bar{x}$ on the FSS and IPAT. *S*s were grouped into an exp. ($N = 10$) and a control group ($N = 8$), each containing high and low anxious *S*s. All *S*s were students in a beginning riding class at Smith College and rode twice a wk for 6 wk. The exp. group received an additional 2 hr training each week in relaxation and desensitization techniques. Following completion of the riding course all *S*s completed the FSS, IPAT, and a follow-up case study questionnaire. All *S*s were given a practical riding evaluation. Data obtained were analyzed on a 360 IBM Computer through use of REANOVA, AVCOFAC, COREL, and Kendall Coefficient programs. No significant differences ($p > .05$) were found between fear levels of the exp. and control groups, or performance in riding and varying levels of fear.

234. FISCHER, Linda. *The history of dance teacher certification and licensing in the United States*. M.S. in Physical Education, 1974, 143 p. (J. A. Mott)
This study traces the historical development of dance teacher certification and licensing systems in the U.S. through a survey of selected literature from the fields of education, dance, and physical education as well as personal correspondence with authorities in these fields. It gives a brief overview of the history of dance instruction in schools, colleges, and private studios from 1800 to the present, and surveys the quality of current dance instruction. Past and present dance teacher certification and licensing procedures by state agencies and dance teacher organizations are reviewed. Recommendations for improving standards of dance instruction include suggested legislation to license private dance studio teachers, recommended dance specialist and PE teacher training curriculums, possible modifications of existing certification requirements, and improved procedures for dance teacher organizations.

(L. K. Vaughan)

235. GALGANO, Marsha L. *The historical development of playground and apparatus design from 1930 to 1973*. M.S. in Physical Education, 1973, 75 p. (P. D. Downie)
The methodology employed was a survey of selected literature including books and periodical articles from the fields of physical education, recreation, child development, psychology, and education. Among the materials examined was information obtained from commercial companies currently engaged in the development of innovative playground apparatus.

(Marcia R. Morgan)

236. KAIN, Kathleen R. *A restatement of Maori dance in modern dance form*. M.S. in Physical Education, 1974, 76 p. (M. R. Morgan)

237. MOLSTAD, Susan M. *The ball intercepting and catching ability of subjects practiced in "open" and "closed" skills under restricted viewing conditions*. M.S. in Physical Education, 1974, 77 p. (J. A. Mott)
Twenty highly skilled female undergraduates volunteered for the study. Data were collected on each of 3 days within a 7-day period with repeated measures on days 2 and 3. On day 1, 50 simple RT trials to a visual stimulus were administered. Four practice trials under full light in which the *S* attempted to intercept a ball projected from a pitching machine were followed by 16 exp. trials. The same number of trials were given in the catching task. On days 2 and 3, 25 RT trials were given as well as 8 interception and catching trials with a strobe light activated for .1, .2, .3, and .4 sec. Statistical analyses included a double classification design ANOVA, a trend ANOVA, and a correlation coefficient matrix. There was a significant difference ($p < .05$) between the intercepting and catching ability for all *S*s in favor of intercepting and the success in both tasks was lower as time for viewing the ball decreased. *S*s practiced in "open" skills did not intercept or catch a significantly greater number of balls than *S*s practiced in "closed" skills.

(L. K. Vaughan)

238. MORONGELL, Joan. *Worship through dance*. M.S. in Physical Education, 1973, 49 p. (L. K. Vaughan)
Through the use of a historical investigation of sacred dance in the U.S., an original choreographic work was developed. The production was performed live, recorded on videotape, and evaluated by 5 critics.

239. MUCKLOW, Patricia Ann. *A study of the major trends in costume design in physical education and selected individual sports for girls and women in the United States from 1940–1970*. M.S. in Physical Education, 1973, 138 p. (P. D. Downie)

240. NEWELL, Penny. *A comparative attitude study toward physical education between high school freshmen in suburban and inner-city areas*. M.S. in Physical Education, 1973, 92 p. (L. K. Vaughan)

The *S*s for the study were 100 suburban 9th grade students and 95 inner-city 9th grade students. The Edgington Attitude Scale was administered to all of the *S*s. In addition, the evaluative criteria established by the National Study on Secondary School Evaluation were used for analysis of program quality. Evaluative procedures were completed by the author and 8 instructors involved in the 2 programs. It was concluded that there was no significant difference in the attitudes of the 2 groups (both groups had highly favorable attitudes) and that the quality of the programs was fair to good.

241. SMITH, Martha Lillian. *A study of boys and girls interscholastic athletics in the Springfield, Massachusetts educational region*. M.S. in Physical Education, 1973, 57 p. (P. D. Downie)

An investigation of administrative and funding practices of interscholastic competition for boys and girls in the Springfield, Massachusetts Educational Region was conducted. The superintendent in 13 of the 22 school districts granted approval for the study. A questionnaire was developed and used during an interview to determine the administrative and financial status of the boys and girls athletic programs. It was concluded that athletic opportunities for girls were not as great as those for boys and that discrimination against girls in athletics exists in administrative and funding practices.

242. STEIGELMAN, Gwen. *An investigation of the relationship of lateral dominance to selected basketball skills of junior high school girls*. M.S. in Physical Education, 1973, 102 p. (P. D. Downie)

Twelve and 13 yr old girls ($N = 200$) were tested to identify eye, hand, and foot dominance and performance in 4 basketball skill tests. The latter tests included short distance shooting, wall passing for speed, wall passing for accuracy, and dribbling. Five major lateral dominance categories were: eye dominance; hand dominance; foot dominance; composite eye, hand, and foot dominance; and eye and hand dominance only. *S*s in each of the 5 major lateral dominance categories and the 4 basketball skill tests were analyzed by a single classification ANOVA. None of the F ratios was significant ($p > .01$). It was concluded that lateral dominance was not a significant factor influencing the performance of selected basketball skills by the JHS girls.

243. SULLIVAN, Patricia A. *A comparative study of self concepts and ideal self concepts of femininity between female athletes and nonathletes*. M.S. in Physical Education, 1973, 76 p. (L. K. Vaughan)

A semantic differential with 3 factors (evaluative, potency, and activity) and 15 scales was administered to 255 females in grades 9–12. The *S*s were identified as athletes or nonathletes on the basis of their participation on interscholastic teams. A t test on $\bar{x}$ scores revealed significant ($p < .05$) differences between all self- and ideal-self factors. In general, the *S*s described an ideal feminine girl as being highly evaluative but not very potent or active. ANOVA identified significant ($p < .05$) differences between athletes and nonathletes on potency and activity factors. The athletes perceived themselves as being more potent and more active than the nonathletes. The 9th, 10th, 11th, and 12th grades differed significantly ($p < .05$) on only the evaluative factor. *S*s in the 12th grade described themselves as being more highly evaluative than did any other grade level. REANOVA revealed significant differences ($p < .05$) between athletes and nonathletes for combined self- and ideal-self evaluative and activity factors. A simple factorial identified significant differences between grade levels on evaluative (self) factor and between athletes and nonathletes on activity (self) and evaluative (ideal self) factor. The athletes perceived themselves as being more active than the nonathletes. In addition, the athletes perceived the ideal feminine girl concept as being more highly evaluative than did the nonathletes. In general, the athlete group reported that they felt more positively about themselves in terms of femininity than did the nonathletes. The total sample identified the ideal feminine girl concept as being significantly different from themselves.

244. TRINKLEY, Marcia L. *A comparison of women dancers and athletes: Attitudes toward physical activity and movement satisfaction.* M.S. in Physical Education, 1974, 98 p. (M. R. Morgan)

Kenyon's Attitude Toward Physical Activity Scale and Nelson and Allen's Movement Satisfaction Scale were administered to college women ($N = 91$) who were participants in dance, gymnastics, swimming, and tennis. A one-way ANOVA was used to compare *S*s when grouped according to: present participation in activity, previous participation in activity, and socioeconomic class. There were differences found among groups of *S*s regarding their attitudes toward physical activity as a social experience, aesthetic experience, and as an ascetic experience. The dancers were most like the gymnasts in their attitudes toward physical activity, and were very different from the swimmers and tennis players. Those *S*s who had previously participated in a variety of activities (individual/dual and team sports) generally had more favorable attitudes toward physical activity than those *S*s who had participated in only one type of activity. All *S*s reported very strong positive feelings toward their ability to move. When grouped according to socioeconomic level, the upper class *S*s indicated the most positive feelings toward movement satisfaction.

245. WILKINS, Linda D. *Attitudes of Smith College women toward physical activity related to their level of participation in competitive sports.* M.S. in Physical Education, 1974, 80 p. (M. R. Morgan)

Smith College women ($N = 84$) were divided into 3 criterion groups to study attitudinal differences between varsity participants, intramural participants, and nonparticipants in organized physical activity. Responses to a background questionnaire were subjected to univariate analysis to verify the classification of students into participation groups. The groups differed on 17 background factors, most of which were related to present and past participation in sports activities. The groups were found to be fairly homogeneous on factors other than participation such as type of hometown, year of graduation, and years of PE experience. Hence, the classification of students into 3 participation groups was supported. Multivariate analysis of scores on Kenyon's ATPA scales showed that attitude toward physical activity significantly discriminates between varsity participants, intramural participants, and nonparticipants. The greatest contributors to the discriminate function were attitude toward physical activity as health and fitness, as a social experience, and as an ascetic experience. Univariate analysis of individual scale scores indicated that the varsity group held a more positive attitude toward the social, pursuit of vertigo, and ascetic dimensions than did intramural participants ($p < .05$) or nonparticipants ($p < .01$). Some speculation as to why these differences exist was offered.

246. WISNIEWSKI, Agnes Marie. *The influence of color and figure-ground patterns on target accuracy.* M.S. in Physical Education, 1973, 63 p. (L. K. Vaughan)

Fourth and 5th grade girls ($N = 200$) were tested on their ability to roll a ball and accurately hit 4 different stationary targets arranged in colored figure-ground configurations. One target was composed of a white background with a red outline of a 12 in. × 9 in. rectangle as the point of aim. The remaining 3 targets had a solid red rectangle as their central figure. These points of aim appeared on white, orange, and green backboards. An ANOVA was performed to determine whether there were differences among the scores achieved on the 4 targets and an F value of .73 was obtained. This value was not significant ($p > .05$).

SOUTHEAST MISSOURI STATE UNIVERSITY, CAPE GIRARDEAU, MISSOURI (R. F. Kirby)

247. LANGE, Robert M. *The influence of eye dominance on baseball batting performance.* M.A. in Teaching, 1974, 73 p. (R. F. Kirby)

Varsity baseball players ($N = 29$) from Southeast Missouri State University served as *S*s. Several groups were formed according to the individual's hand and eye preference; tests were given for the purpose of determining the dominant eye of each *S* and for checking his visual acuity. Two general laterality groups were used in comparing batting performances: the unilaterals and the crossed laterals. Two unilateral subgroups were formed on the basis of their batting stance. The open and closed stance unilaterals were also compared. The groups were compared in their performances in the batting departments of: strike-outs, missed-swings, bases-on-balls, struck-balls, and batting average. The results showed that the unilaterals outperformed the crossed laterals in all batting departments, which was contrary to popular opinion. The closed stance unilaterals outperformed the open stance group in 3 of the 5 batting categories. Several findings seemed to back the hypothesis that eye dominance affects baseball batting, although additional research would seem necessary.

SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE, ILLINOIS

(Ronald G. Knowlton)

248. ADAMS, Gary E. *Cardiac output determined by carbon dioxide rebreathing in obese males during weight supported and non-weight supported exercise.* Ph.D. in Physical Education, 1974, 146 p. (R. G. Knowlton)

Cardiac output was studied in sedentary obese male *Ss* ($N = 10$) during weight supported (bicycle) and nonweight supported (treadmill) exercise at workloads representing 25%, 50%, and 75% of their previously established PWC_{170} and compared with sedentary lean *Ss* ($N = 6$). At 2-day intervals, each *S* first performed bicycle work at the 3 described levels followed by treadmill work the 2nd day. Cardiac output, $a\text{-}vO_2$ difference, max vO_2, HR, and stroke volume were determined during the 2 types of work and statistically analyzed at the $p < .05$ level. Preceding the investigation, the reproducibility of CO_2 rebreathing as a noninvasive method to determine exercise cardiac output was studied. No significant difference in cardiac output between bicycle and treadmill exercise in the obese group was observed at the 25% and 50% levels while at the 75% level a significant increase during treadmill exercise was accompanied by a significant increase in max vO_2. Central and peripheral vascular changes conformed to known responses during the graded work and were similar in the obese *Ss* for bicycle and treadmill exercise. On the basis of a 2-day interval between duplicate test-retest determinations, mixed venous CO_2 gas tension with CO_2 rebreathing showed significant repeatability *r* coefficients ($p < .001$) at 2 submaximal work levels and was therefore considered useful in the measurement of exercise cardiac output.

249. CHAMBERS, Nikki S. *The effects of the use of a selected aid upon improving performance in shooting free throws.* M.S. in Education, 1974, 75 p. (C. West)

After a pretest of 50 free throws, females *Ss* ($N = 20$) were placed in 2 groups. The 2 groups participated in practice sessions during which 25 free throws were shot 3 times/wk for 4 wk. During the practices the exp. group wore a commercial shooting glove while the control group used no such aid. A posttest of 25 free throws on each of 2 days was conducted upon completion of the practices. Although the findings indicated that no significant differences existed between the groups during the pretest, practice, or posttest sessions, both groups did improve significantly in accuracy of shooting free throws.

250. COX, Michael H. *Metabolic and cardiovascular responses of middle-aged men to physical activity.* M.S. in Physical Education, 1973, 81 p. (R. G. Knowlton)

Ss ($N = 41$) were divided into 2 groups according to kcal/wk energy expenditure (<2000, >2000). Data analyzed consisted of wt., RQ, V_E/vO_2, O_2 consumption, vO_2/HR, blood pressure, cholesterol, hemoglobin, HR, percent body fat, and relative wt. *Ss* were compared to the national norm in relation to the documented risk factors of coronary heart disease and were found to exhibit values placing them far below CHD risk factor levels. No significant differences existed between the 2 groups.

251. DOYLE, Paul D. *The effect of hand position during the preparatory phase of selected kinematics of the throwing motion.* M.S. in Physical Education, 1974.

Ss ($N = 17$) were selected from a college general studies course in tennis and grouped to yield 2 exp. groups (A and B) and 1 control group (C) with equal mean throwing velocities. Group A was instructed in and practiced pronating the forearm during the preparatory phase of the overhand throwing motion. Group B was instructed in and practiced supinating the forearm during the preparatory phase of the overhand throwing motion. Group C, the control group, practiced throwing with their natural throwing motion. Bi-axle cinematographic procedures were used to record the throwing motion for later kinematic analysis. Observation of mean horizontal velocities showed decrease in both exp. groups and the control group. Observation of mean group values indicated group A to have the greatest shoulder rotation about the spinal axis, group B to have the greatest horizontal extension of the throwing arm beyond the cardinal coronal plane of the body, and group C to have the greatest arc length.

(J. A. Thorpe)

252. KIRKPATRICK, Jane. *Two methods of learning the serve in volleyball.* M.S. in Physical Education, 1973, 236 p. (J. A. Thorpe)

The exp. groups learned only the overhand serve, while the control groups learned the underhand serve exclusively. *Ss* were 116 9th grade students enrolled in the PE program at George Washington Carver High School, Birmingham, Alabama. Comparisons were made using the Volleyball Serve Test (VST). The reliability of *S* performance on the VST was studied using the test-retest method. Linear regression analysis was used to compare method and teacher groups and to study the interaction between teachers and methods on the VST. *Ss* were compared with regard to velocity, velocity points, accuracy points, and grand total of points. Findings indicated that *S* performance on the VST may be considered reliable when considering the background of the *Ss*; classes were significantly different with regard to all aspects of the VST; there were no significant differences between the teacher groups; there was no significant interaction between teachers and methods; and the control method (underhand serve) was superior to the exp. method (overhand serve) in this study.

(Ronald Knowlton)

253. LAING, Sandra L. *The construction and evaluation of a programmed text for teaching the tinsica.* M.S. in Physical Education, 1974, 311 p. (C. West)

The literature was reviewed and definitions of the tinsica were synthesized based upon the European technique for performance. A program was constructed which contained 4 parts: 1 for the introduction, 2 for reviewing and testing the backbend and the cartwheel, and 1 for teaching the tinsica. The last 3 parts included self-checks, partner-checks, and instructor-checks for testing the ability of the learner to meet the performance criteria. The tests incorporated a physical setup of 10 different stations. Theoretical evaluations were made by 5 experts—2 in gymnastics, 2 in programed instruction, and 1 in English grammar and usage. Exp. examinations conducted to test the program involved 18 female *Ss*: 9 *Ss* participated in the first pilot study; 2 *Ss* participated in the 1-to-1 study; and 7 *Ss* participated in the field study. Data from the various experts resulted in initial revisions in the program in the form of additional steps, division of steps, and rewording of steps. Examinations of data from the various exp. studies resulted in further refinement of the program following the first 2 studies and suggestions for changes after the field study. The results indicated that the program is detailed and time-consuming. Some of the lead-up steps cause soreness in the back. The program is not equally effective with all students and all students do not react favorably to the program. The program is effective if students are motivated to practice and to follow directions. The program alone does not provide adequate motivation for all types of students.

254. PAGE, Charles A. *A comparison of selected biomechanical factors of two track sprint starts.* M.S. in Physical Education, 1974.

Eleven *Ss* were selected from University PE classes and randomly assigned to 2 separate groups. Group I was instructed in and practiced the standing start followed by the medium crouch start. Group II was instructed in and practiced the medium crouch start followed by the standing start. Upon completion of an 8-wk training program, cinematographic procedures were used to film and to record the desired biomechanical variables. It was concluded that there were no biomechanical differences between those 2 starts from the 10 to the 20-yd mark. In regard to the biomechanical variables, the standing start was as effective as the medium crouch style start. There was less change in the body posture from the set position to the running position when using the standing start style ($p < .05$).

255. PLEGGENKUHLE, Janice. *The development and evaluation of a self-instructional program for selected steps of a social dance*. M.S. in Physical Education, 1974, 189 p. (C. West)

A written self-instructional program was constructed for selected steps of the social dance, the cha cha cha. This program was then evaluated within the framework of a modified methodology, i.e., a combination of the traditional and self-instructional methods. College students ($N = 66$) in a PE class were involved in the study. The *S*s were divided into 2 groups, an exp. and a control. No significant differences were found between groups with respect to amount of learning. No category of *S*s, as based upon initial levels of ability, performed significantly better using either method.

SPRINGFIELD COLLEGE, SPRINGFIELD, MASSACHUSETTS (William J. Sullivan)

256. BARKER, Meredith Ann. *A study to determine if auditory perception may be improved through participation in an adapted physical education program of selected activities*. M.S. in Physical Education, 1974, 75 p. (H. Childs)

*S*s for this study were 31 kindergarten, 1st and 2nd grade children (ages 5–8) of average IQ with no physical disabilities who scored below normal on the Wepman Auditory Discrimination Test (form A). The *S*s were assigned to an exp. or a control group. The exp. group participated in an adapted program of 50 lessons which included activities designed to improve perception. The control group participated in 50 regular PE classes. At the end of the exp. period the *S*s in both groups were tested on form B of the WADT. The *t* test showed the exp. group to have improved significantly more than the control group ($p < .05$).

257. BEEBE, Jill L. *A comparison of four methods of feedback in the form of knowledge of performance on the learning of gymnastic skills*. D.P.E., 1974, 198 p. (E. Seymour)

*S*s ($N = 116$) were 7th and 8th grade girls who were judged to be at the beginner (novice) level in the area of vaulting. *S*s were randomly assigned to 1 of 4 groups: verbal feedback ($N = 28$); videotape feedback ($N = 30$); verbal and videotape feedback ($N = 29$); and verbal, videotape, and verbal analysis feedback ($N = 29$). All *S*s took a pretest on the squat vault and flank vault before beginning a 7-lesson plan which was the same for all *S*s with the exception of the feedback conditions. At the conclusion of the 7 lessons, all *S*s were again tested on the squat vault and flank vault. ANCOVA was used to analyze the data and showed no differences ($p > .05$).

258. BOATENG, Benhard Labi. *A study of selected aspects of physical education programs in Ghanaian secondary schools*. M.S. in Physical Education, 1974, 96 p. (J. Parks)

Data for this study were obtained from the questionnaire responses of 10 Ghanaian PE specialists (5 PE administrators and 5 special tutors) and 64 secondary school PE teachers. The data were treated by percentage analysis and led to the following conclusions: the order of importance of PE objectives are physical and corrective, motor skills, emotional, social and cultural; activities which should be included in the PE program are track and field, soccer, gymnastics, volleyball, netball, basketball, tennis table tennis, and swimming; fe[illegible] facilities in the secondary schools are satisfactory but court and indoor areas are lacking; there should be at least 1 male and 1 female teacher for every 500 students; secondary school students should have at least 2 PE lessons/wk; and PE should be required for graduation.

259 CAMPBELL, Donald. *Variations in method of exercise and rest period interval upon strength and endurance*. M.S. in Physical Education, 1974, 39 p. (W. Sullivan)

The *S*s for this investigation were 30 HS male students who were randomly assigned to 1 of 6 treatment groups resulting from the factorial arrangement of 2 factors. The 2 factors were the type of exercise (isotonic and isokinetic) and the rest period interval (.5 min, 1.0 min, and 1.5 min). All *S*s were pretested for strength and relative muscular endurance (bench press exercise used) before beginning a 6-wk conditioning program under the assigned treatment condition. At the conclusion of the training period all *S*s were retested. ANCOVA showed that the mean strength score for isotonic exercise was significantly higher ($p < .05$) than for isokinetic exercise. There were no difference ($p > .05$) in strength among the 3 rest period intervals. There were no significant ($p > .05$) main effects for the variable of relative muscular endurance.

260. CAMPBELL, Wilburn A., Jr. *The self-concept of the black competitive swimmer: A psychocultural analysis.* D.P.E., 1974, 105 p. (J. Parks)
Ss ($N = 62$) for this study were varsity swimmers from 7 predominantly black colleges. All *Ss* were timed in the 100-yd freestyle and administered the Semantic Differential Scale once and the Butler and Haigh Q-Sort 4 times (real self, ideal self, self as a swimmer, and self as a black swimmer). A repeated measures ANOVA was used to test for differences among these 4 roles. Three analyses were performed for the influence of family, peers, and black models. A randomized ANOVA was used to study the relationships among swimming ability and the 4 roles. Analysis led to these conclusions: the black competitive swimmer is able to identify himself in each of the 4 roles; the 4 self-concept roles are not influenced by swimming ability; the black competitive swimmer does not perceive differences in the influence of family, peers, and black models among the 4 self-concept roles; the black competitive swimmer is able to perceive differences in his concept of self as he assumes different roles.

261. CIANFARANI, Carol M. *A mechanical analysis of the women's handspring vault.* M.S. in Physical Education, 1974, 36 p. (E. Steitz)
Ss for this study were 3 varsity women gymnasts, each of whom was filmed performing (3 trials) the women's handspring vault. A panel of gymnastic experts chose trial 2 of the 3rd vaulter as the best vault and the frames of this performance were used for the analysis. Based upon the film analysis, a list of 16 findings is presented pertaining to the mechanics of the vault.

262. COLLINS, Christine K. *Personality traits of women varsity participants in open and closed skilled sports.* M.S. in Physical Education, 1974, 100 p. (B. Jensen)
Ss ($N = 59$) were women varsity tennis (open skill) players ($N = 25$) and women varsity swimmers (closed skill) ($N = 34$) from 4 colleges in New England. All *Ss* were administered the Cattell Personality Factor Questionnaire (16 PF). Each of the 16 traits was analyzed by the t test which showed that the tennis players scored significantly higher ($p < .05$) than the swimmers on affectothymia and protension. The swimmers scored significantly higher ($p < .05$) than the tennis players on higher scholastic mental capacity. Differences on all other traits were nonsignificant ($p > .05$).

263. COTE, Marcel. *Comparison between level of aspiration of normal and educable mentally retarded boys for stabilometer performance.* M.S. in Physical Education, 1974, 47 p. (B. Jensen)
Ss ($N = 60$) for this study were boys from 10 to 12 yr of age. Thirty boys were of normal intelligence (IQ 90–110) and 30 boys were EMR (IQ 52–67). All *Ss* were given 10 learning trials and 10 test trials on the stabilometer. Before each of the 10 test trials each *S* was asked if his score on the next trial would be better (+), equal to (=), or poorer (−) than his previous trial score. ANOVA was used to analyze the data and showed no significant differences ($p > .05$) between the level of aspiration scores of the 2 groups.

264. CYR, Guy. *The use of the different stances and their influence on distance and accuracy in golf.* M.S. in Physical Education, 1974, 33 p. (E. Bilik)
The *Ss* ($N = 15$) for this study were low handicap golfers who were tested for distance and accuracy under 7 different conditions of stance. The 7 conditions were: the square stance; 3 closed stances where the right foot was drawn back 3, 6, or 9 in.; and 3 open stances where the left foot was drawn back 3, 6, or 9 in. All *Ss* used their own driver (#1 wood) and were given 10 shots under each condition. ANOVA showed no significant differences ($p > .05$) among the 7 stances in distance or accuracy.

265. DANCHIK, John J. *A comparison of putting effectiveness between the conventional and spot putting methods in golf.* M.S. in Physical Education, 1974, 25 p. (W. Sullivan)
Low handicap golfers ($N = 18$) were used as the *Ss* in this study. Nine *Ss* were randomly selected to use the spot putting method and the remaining 9 used the conventional method (*S*'s own style other than spot putting). All *Ss* took 10 putts from 6 ft and 10 putts from 25 ft. The exp. design was a 2-factor design with repeated measures on 1 factor. ANOVA showed that the spot-putting method was significantly ($p < .05$) more accurate than the conventional method. As expected, the *Ss* were more accurate at the 6-ft distance than the 25-ft distance, but there was no interaction between the factors of method and distance.

266. DESLAURIERS, Denis. *An analysis of the straddle hecht dismount from the horizontal bar.* M.S. in Physical Education, 1974, 81 p. (E. Steitz)
Two members of the Canadian gymnastic team and 1 graduate student from Temple University were filmed performing the straddle hecht dismount from the high bar. The films were analyzed using anatomy and mechanics. Ten conclusions are presented dealing with the techniques of the 3 *Ss* on the straddle hecht dismount.

267. DONOHOE, John A. *Scoring effectiveness of the wrist shot, snap shot, and slap shot.* M.S. in Physical Education, 1974, 39 p. (W. Doss)
The data used for this study were recorded at the home games of the Springfield Kings Hockey Club of the American Hockey League during the 1971–72 season. All data were converted to percentages and various statistical comparisons were made among the 3 different types of shots. Out of 18 comparisons, 6 were found to be statistically significant ($p < .05$). They were: (for forwards) the wrist shot was more accurate than the slap shot or the snap shot (greater percentage of shots on goal). A greater percentage of slap shots than wrist shots were blocked. A greater percentage of snap shots resulted in goals than either the wrist or slap shots. The 1 significant difference for defensemen was that the wrist shot was more accurate than the snap shot.

268. GREGORY, Carol Ann. *The effect of feedback variations on the acquisition of a novel motor balance skill.* M.S. in Physical Education, 1974, 67 p. (B. Jensen)
Ss ($N = 32$) for this study were 3rd grade children assigned to 1 of 4 treatment combinations resulting from the factorial arrangement of 2 factors, each varied at 2 levels. The 2 factors were tactile feedback (high vs. low) and auditory feedback (masked vs. unmasked). All *Ss* were tested for stabilometer performance under their assigned treatment condition for a period of 3 consecutive days. The design was a $2 \times 2 \times 3$ with repeated measures on the last factor (days). Analysis by ANOVA and Newman-Keuls showed that the only significant difference ($p < .05$) was for the main effect for days where there was improvement in stabilometer performance over the 3 days of practice.

269. GROSS, Regina Mary. *The effect of stimulus and movement complexity upon reaction time and movement time of college women athletes.* D.P.E., 1974, 121 p. (B. Jensen)
Ss ($N = 14$) for this study were women collegiate team sport athletes. All *Ss* were tested for RT and MT under 9 conditions resulting from the factorial arrangement of 2 factors, each at 3 levels. The 2 factors were stimulus complexity (simple, intermediate, and complex) and movement complexity (simple, intermediate, and complex). ANOVA was used to analyze the data from the treatments by treatments by subjects design. Conclusions of the study were: RT is not affected by changes in stimulus or movement complexity; RT is affected by an interaction of stimulus and movement complexity; for a complex movement, RT is faster when the stimulus is simple than when it is intermediate or complex; and MT is not affected by changes in stimulus complexity.

270. HARBEN, Robert G. *A comparison of the throwing techniques used by goalkeepers in soccer.* M.S. in Physical Education, 1974, 43 p. (E. Bilik)
Ss for this study were 10th and 11th grade boys ($N = 27$) with no soccer experience. They were randomly assigned to 1 of 2 groups. One group ($N = 13$) learned and practiced the overhand soccer throw while the other group ($N = 14$) learned and practiced the sling technique of throwing the soccer ball. When all *Ss* in each group were competent in throwing they were tested for accuracy and distance. Analysis by t test showed no significant difference ($p > .05$) in the $\bar{x}$ distance scores of the 2 throwing techniques. The overhand technique of throwing was slightly more accurate then the sling technique.

271. HARRIS, Wilson D. *Comparative times required to complete various back stroke turns.* M.S. in Physical Education, 1974, 43 p. (B. Jensen)
Ss ($N = 16$) for this study were members of the men's varsity swimming team at Springfield College. All *Ss* practiced and were tested using 3 back stroke turns: pivot flip turn, back flip turn, and forward flip turn. The design was a 3×2 with repeated measures. One factor was the type of turn and the other factor was trials (2). Treatment of data was by ANOVA and Duncan's Multiple Range Test which showed that the forward flip turn was the fastest for both trials. There was no difference between the pivot flip turn and the back flip turn on trial 2 but there was a difference between these 2 turns for trial 1.

272. HOFFSTEIN, Jerald B. *The difference in self-concept between open and closed skilled participants.* M.S. in Physical Education, 1974, 40 p. (B. Jensen)
Ss ($N = 71$) for this study, members of Brooklyn College men's swimming and fencing teams and Springfield College men's wrestling and gymnastic teams, were all administered the Butler-Haigh Self-Ideal Q Sort Scale. Comparisons were made by t test between the open skill athletes (wrestling and fencing) and the closed skill athletes (swimming and gymnastics) on the real-self scores, the ideal-self scores, and the discrepancy scores. ANOVA was used to make comparisons among the 4 sports groups relative to the discrepancy scores. No significant differences ($p > .05$) were found.

273. LESUEUR, Paul G. *The effect of pressure training on the agility of soccer players.* M.S. in Physical Education, 1974, 43 p. (W. Sullivan)
Ss for this study were 19 Springfield College male varsity soccer players who were randomly assigned to a pressure training group or a traditional training group. *Ss* were given the LSU Agility Test before and after their 5-wk training program. Both groups trained each day for 45 to 60 min. ANCOVA showed no significant difference ($p > .05$) between the $\bar{x}$ agility scores of the 2 groups.

274. MacDOUGALL, Murray K. *The effects of a timed weight training circuit program on cardiovascular endurance.* M.S. in Physical Education, 1973, 36 p. (E. Seymour)
Ss ($N = 22$) for this study were SHS students between the ages of 14 and 19 yr. They were matched according to their scores on the Harvard Step Test and assigned to an exp. group or a control group. The exp. group performed in the Timed Weight Training Circuit (3 times/wk) in addition to participating in the prescribed PE core program 3 periods/wk. The control group participated only in the PE program. The training period was 6 wk in duration. At the conclusion of the exp., all *Ss* were again measured on the Harvard Step Test. The t test for correlated means was used to analyze the data and showed the exp. group to have improved significantly ($p < .05$) more than the control group.

275. MESSINEO, Eloise M. *Cross education effects on hand-eye and foot-eye coordination.* M.S. in Physical Education, 1974, 67 p. (B. Jensen)
Ss ($N = 63$) for this study were kindergarten children who were assigned to 1 of 4 groups: foot-eye activities ($N = 12$); hand-eye activities ($N = 17$); foot-eye and hand-eye activities ($N = 14$); or a control ($N = 20$). All *Ss* took tests of hand-eye and foot-eye coordination before a 4-wk training program consisting of either hand-eye activities, foot-eye activities, or both; the control group had no training program. At the conclusion of the training programs all *Ss* were retested for hand-eye and foot-eye coordination. ANCOVA showed no significant differences ($p > .05$) among the 4 groups in either hand-eye or foot-eye coordination.

276. OMAND, Richard E. *A study to compare two methods of pitching a softball for velocity and accuracy.* M.S. in Physical Education, 1974, 22 p. (W. Doss)
Two methods of pitching a softball were investigated in this study, the windmill windup hitting the hip and the windmill windup not hitting the hip. The *Ss* for the investigation were 12 boys in the 9th grade. *Ss* practiced 1 method for 4 wk and were tested for velocity and accuracy. They then practiced the other method for 4 wk and were again tested. Use of t tests showed that the windmill windup hitting the hip was superior ($p < .01$) in both velocity and accuracy.

277. OVER, Patricia E. *The development of a non-verbal body scheme test.* M.S. in Physical Education, 1974, 68 p. (B. Jensen)
A nonverbal body scheme test was developed based upon the Purdue Perceptual-Motor Survey Identification of Body Parts Test. Validation and reliability procedures showed the test to be acceptable. Following the test construction, deaf ($N = 16$) and nondeaf ($N = 16$) *Ss* were all administered the newly developed test and the Identification of Body Parts test. The exp. design was a 2×2 factorial with repeated measures on the type of test (verbal or nonverbal) factor. The results showed that the deaf *Ss* scored significantly higher ($p < .05$) on the nonverbal test than the verbal test. There was no significant difference ($p > .05$) between the $\bar{x}$ scores of the nondeaf *Ss* on the 2 tests. The nondeaf *Ss* scored significantly higher ($p < .05$) than the deaf *Ss* on the verbal test but there was no difference ($p > .05$) between the deaf and nondeaf *Ss* on the nonverbal test.

278. PORTELANCE, Jacques. *Pass receiving (behind the forward skate) in the inverse forward position in ice hockey.* M.S. in Physical Education, 1974, 41 p. (E. Seymour)
Ss ($N = 80$) were amateur hockey players from 4 levels of hockey: midget, juvenile, junior, and intermediate. Each *S* received 25 passes while in the traditional forward position (right-handed player on right side) and 25 passes while in the inverse forward position (right-handed player on left side). Each pass was scored as to whether it was controled or not controled. Analysis of data by the *t* test showed that the *Ss* had significantly greater control ($p < .001$) of their pass reception when performing in the traditional forward position.

279. PUTZ, G. Alan. *A comparison of the right and left bent leg pop-up slides at second base.* M.S. in Physical Education, 1974, 34 p. (W. Sullivan)
Eight varsity and 14 freshman Springfield College baseball players were tested for the speed with which they could execute the left and right bent leg pop-up slides at second base. Analysis of the data by a correlated *t* showed the left leg slide to be significantly faster (p x .01) than the right leg slide.

280. RAPPAPORT, Michael. *The frequency of held balls called by collegiate basketball officials during player control.* M.S. in Physical Education, 1974, 42 p. (E. Steitz)
Data for this study were obtained from 29 varsity and subvarsity basketball games at Springfield College, American International College, and Western New England College. Two observers in the grandstand with unimpeded views of the playing floor recorded the number of violations which would result in a held ball call. Also recorded were the number of held ball calls by the game officials. In the 29 games observed, a total of 53 violations were recorded by the observers. The game officials made 11 calls. The χ^2 statistic applied to these data resulted in a significant difference ($p < .01$) between the observers' calls and the game officials' calls.

281. REARICK, Nancy N. *The Woods Brothers basketball team of Portsmouth, New Hampshire, 1900 to 1906.* M.S. in Physical Education, 1974, 82 p. (J. Genasci)
Data for this study were obtained from newspapers, city records, interviews, diaries, scorebooks, and documents at the Basketball Hall of Fame in Springfield, Massachusetts. Presented is a documentary record of the Woods Brothers basketball team through the years 1900–06.

282. REMINICK, Howard E. *A comparison between vocationally adaptable and unadaptable educable mentally retarded high school boys on selected variables.* D.P.E., 1974. (W. Sullivan)
Ss in this study were EMR boys in grades 10–12 who were classified as vocationally adaptable ($N = 70$) or vocationally unadaptable ($N = 45$) according to a set list of objective criteria. All *Ss* were measured for intelligence; the motor factors of agility, power, muscular endurance, and fine motor coordination; and the personality characteristics of ascendancy, responsibility, emotional stability, and sociability. The *t* test was used to determine significant differences between the 2 groups. Significant differences ($p < .05$), all favoring the vocationally adaptable group, were found for fine motor coordination, agility, ascendancy, responsibility, and sociability.

283. SABEAN, Robert S. *A survey of the interests of Costa Rican adolescents toward organized camping.* M.S. in Community and Outdoor Recreation, 1974, 147 p. (G. Harrison)
A stratified sample consisting of 1% ($N = 815$) of the HS students in Costa Rica was used in this study. A questionnaire was administered to the sample of *Ss* to determine their attitudes and interests relative to organized camping. A list of findings is presented which led to the following conclusions: camping does have a future in Costa Rica; HS students want camping and tripping experiences; they respond favorably to the idea of living in a rustic setting; HS students in Costa Rica were found to have had considerable camping experience; HS students in Costa Rica understand a camp program in more than strictly recreational terms; and they accept the educational and social dimensions of a summer camp.

284. STEITZ, Stephen E. *A comparison of baseball knowledge between male and female fans.* M.S. in Physical Education, 1974, 39 p. (W. Sullivan)
Ss for this study were male ($N = 41$) and female ($N = 47$) major league baseball fans and students ($N = 34$) enrolled in a baseball coaching class. All *Ss* were administered a test of baseball knowledge. Comparisons among the 3 groups were made by ANOVA and Duncan's Multiple Range Test. It was found that there was no significant difference ($p > .05$) in the degree of baseball knowledge of male and female major league baseball fans. The *Ss* in the baseball coaching class had a significantly greater ($p < .05$) knowledge of the strategy and techniques of baseball than either the male or female major league baseball fans.

285. TAYLOR, Richard W. *Aggressive responses of high and low skilled basketball competitors of two age levels.* D.P.E., 1973, 139 p. (E. Seymour)
Ss ($N = 49$!) were boys, ages 11–16 yr., attending a summer basketball camp. All *Ss* were administered the Harrison Basketball Test and, on the basis of the results, divided into 2 groups of extreme basketball ability (highest 25% and lowest 25%). The final sample consisted of 246 *Ss* (123 each of high and low ability). The Rosenzweig Picture-Frustration Study was administered to these *Ss* and comparisons were made between the high and low ability groups relative to the types and direction of aggressive responses. Analysis by the *t* test led to the conclusion that the skill level of an individual participant in team sport competition is not related to the expression of aggression.

286. TRAVERSE, John P. *Personality characteristics of junior high school athletes, intramural participants, and nonparticipants.* M.S. in Physical Education, 1974, 55 p. (W. Sullivan)
Four scales of the California Psychological Inventory (CPI) were administered to 180 JHS males and females each of whom had been classified as athlete, intramural participant, or nonparticipant. The 4 scales were: dominance, sociability, self-acceptance, and self-control. The exp. design was a 3 (grades 7, 8 and 9) by 3 (participant levels mentioned above) by 2 (sex), and the data were analyzed by ANOVA. It was found that athletes exhibited greater dominance than nonparticipants. Seventh and 9th grade females were more dominant than 8th grade females. Male athletes and intramural participants were more sociable than nonparticipants. Male athletes showed a higher degree of self-acceptance than male nonparticipants. Ninth grade athletes had greater self-control than 9th grade intramural participants and nonparticipants.

287. VOLCHKO, Kathleen. *A study of girls' interscholastic athletics in the high schools of Massachusetts 1969–70.* M.S. in Physical Education, 1970, 523 p. (J. Parks)
Data for this study were obtained from 254 high schools in Massachusetts that enroll girls in grades 9, 10, 11, and 12. It was found that 222 schools had interscholastic programs for girls. The $\bar{x}$ number of years the programs existed was 15. Sixty-six schools did not offer an intramural program; 177 schools did not excuse the interscholastic participant from PE classes. Other findings were presented relative to number of activities, kinds of activities, budget, salary, and training.

288. WELCH, John H. *A kinematic analysis of world class crawl stroke swimmers.* D.P.E., 1974, 154 p. (W. Sinning)
Ss ($N = 10$) in this study were world class crawl stroke swimmers who participated in the 1972 NCAA Swimming Championships. All *Ss* were filmed swimming the crawl stroke during actual competition. Angular displacement was measured according to standard criteria. Also determined were displacement, velocity, and acceleration curves. Analysis of the data was by 2 primary approaches: analysis-by-segment and analysis-by-subject. Several conclusions pertaining to each of the 2 categories of analysis are presented.

289. WRIGHT, Gregory Allen. *A documentary study of varsity men's swimming at Springfield College 1914–1974.* M.S. in Physical Education, 1974, 242 p. (J. Genasci)
The intent of this study was to collect, categorize, and collate all information relative to competitive swimming at Springfield College from 1914–74. Data were obtained from various sources at Springfield College, the city of Springfield, and published materials from the NCAA and AAU. The data were organized according to the years each coach served, including meet results, team rosters, and conference and NCAA champions.

STANFORD UNIVERSITY, STANFORD CALIFORNIA (J. Nixon)

290. DUQUIN, Mary E. *Institutional sanction for girls' sport programs: Effects on female high school students.* Ph.D. in Physical Education, 1974, 80 p. (J. Nixon)
This research examined the relationship between the level of institutional sanction 8 suburban HSs accorded their girls sport programs and the attitudes of female athletes ($N = 280$) and nonathletes ($N = 800$) in those schools toward sport and physical activity. An institutional sanction inventory was developed to measure and classify high and low sanction schools. Factors in this inventory included: girls sport budget, promotion of the program, per cent of coeducational programing, awards and recognition of sport participants, teacher attitude toward coaching, teacher satisfaction with program, and teacher expectation of students. Results of an ANOVA indicated that athletes in high, versus low, sanction schools had significantly (.01) more positive attitudes toward their: PE programs, personal involvement in physical activity, and perceived sanction of the girls sport program. Nonathletes in high sanction schools had a significantly more positive belief in the importance of sport for girls and perceived sanction of the girls program. Given that females experience antisport socialization before HS, this study suggests that adolescent socialization can be effected and normative change occur during the HS experience and that the school and school officials communicating to the students through a series of symbolic messages can be effective agents in this socialization of girls toward sport.

291. STEVENSON, Christopher L. *Sport, socialization, and the profession: A paradigm of institutional socialization.* Ph.D. in Education and Sociology, 1974. (J. E. Nixon)
An attempt is made to apply a model of institutional socialization to college sport. Five variables were generated with reference to college sport; the specific elite occupations of law, medicine, and business; 2 nation-states, Great Britain and the U.S.; and elite and nonelite universities. A tripartite design was used; a questionnaire survey of college students ($N = 422$); interviews of significant occupational allocators ($N = 7$); a library research phase. The results supported the conclusion that institutional socialization effects, specific to the professions of law, medicine, and business, are theoretically unlikely to occur through participation in college sport in either Great Britain or the U.S.

STATE UNIVERSITY COLLEGE AT BROCKPORT, BROCKPORT, NEW YORK (M. L. Puthoff)

292. CHRISTINA, William B. *The effect of massed and distributed practice on the performance of a gross motor skill.* M.S. in Education, 1974, (J. Winnick)
Fifteen massed practice (MP) and 15 distributed practice (DP) *S*s were randomly selected from an intact class of 37. The criterion task (dribbling a basketball) and 4 unrelated tasks (alternate activity tasks) were employed in the investigation. *S*s practicing under MP conditions received one 6 min practice trial on all tasks during a single practice session. *S*s practicing under DP conditions received two 3 min practice trials on all tasks during a single practice session. The total time spent practicing on the criterion task and alternate activities was the same for each group. The total time was 30 min for the entire study and 6 min during a single practice session. The results of ANOVA on pretest performance scores showed no significant differences occurring between the practice groups. The results of the ANOVA and ANCOVA on posttest performance scores showed significant differences to be occurring. This study found evidence to support the hypothesis that DP was more effective in the performance of a gross motor task within an applied setting than MP would be.

293. LEITZKE, Stanley. *Performance of an endurance task by educable mentally retarded pupils as a function of audience reaction and short-term grouping procedure.* M.S. in Education, 1974, 116 p. (J. Winnick)

Contrary results in research completed concerning motivational techniques, social reinforcement, and short-term grouping (STG) were investigated using an endurance task. The effects on endurance of 2 types of audience verbal reinforcement (AVR) and 2 types of STG were studied on 1 pretest trial and 3 trials under treatment conditions. The exp. design had 4 groups with 12 *Ss* per group where AVR was either positive or neutral and where *Ss* coactor was either an EMR *S* or a regular *S*. The endurance task studied was a leg extension task. The main analysis of this study was performed using the complete ANOVA. Results showed that the EMR *Ss* coacting with regular *Ss* performed the endurance leg-extension task significantly longer than the EMR *Ss* coacting with other EMR *Ss*. Results showed no significant effects related to the AVR variable.

294. PRICE, Lawrence. *Proprioceptive feedback and motor learning: A test of Adams' closed loop thoery.* M.S. in Education, 1974, (R. Christina)

Two amounts of proprioceptive feedback (PFB) were studied as sources of response-produced feedback on acquisition trials with knowledge of results (KR), and on trials where KR was withdrawn. The exp. design had 6 groups with 5 *Ss* per group where amounts of PFB were either high or low and where *Ss* perception of these levels was either distorted or not distorted from acquisition to KR withdrawal. The response studied was a linear, 10-in. displacement of the right arm, the duration of which was precisely 2 sec. Performance in acquisition and on KR withdrawal trials was not differentiated on the basis of PFB levels. Proficient performance was maintained on trials when KR was withdrawn, but became worse when the perception of incoming PFB was distorted. Although estimated error was not dependent upon the amount of PFB, estimated error was less than actual error as predicted. The results were interpreted as supporting some of the hypotheses under test, but unequivocal evidence in support of Adams' theory was not produced.

295. RYAN, Terrence M. *Motor task performance of educable mentally retarded pupils as a function of reinforcement and short term grouping procedures.* M.S. in Physical Education, 1973, 146 p. (J. Winnick)

A 2 × 2 repeated measures design was used to determine the effects of reinforcement and grouping on the motor performance of 48 EMR pupils. The motor task involved the *Ss* placing their dominant hand on a microswitch and moving that hand to another microswitch when a sound was given. Each *S* was pretested alone prior to treatment. Three blocks of 20 trials were administered to the *Ss* under treatment conditions. ANOVA of the pretest scores indicated no significant differences between the groups. The results of the ANOVA on the 3 blocks of trials indicated no significant differences for the main effects of grouping and reinforcement on performance, but did indicate significant differences between trials. Application of the Neuman-Keuls procedure established a criterion score of motor performance for each block of trials. Results of the final ANOVA using the criterion scores for each block of trials indicated that reinforcement and grouping had no significant effect on the motor performance of the *Ss*.

296. ZACHOFSKY, Daniel. *The effects of extrinsic reinforcement upon the motor performance of learning disabled children on a selected motor task.* M.S. in Education, 1974, (R. French)

Ss selected were 68 learning disabled children. The sample was randomly divided into a reinforcement, nonreinforcement, and control group and administered a pretest and posttest on a specific motor task. A 5-wk PE program was provided to the reinforcement and nonreinforcement groups, with no treatment provided to the control group. The *Ss* were administered a softball throw test to measure the variables distance, accuracy, and total score. The reinforcement group improved on all variables over testings, while the nonreinforcement and control groups decreased. Improvements made by the reinforcement group were attributed to the inclusion of extrinsic reinforcement and/or the PE program. The findings can only be generalized to a male population.

STATE UNIVERSITY OF NEW YORK AT BUFFALO, BUFFALO, NEW YORK (C. R. Meyers)

297. GRACE, Robert E. *Competency-based professional education in physical education.* Ed.D. in Physical Education, 1974, 176 p. (C. R. Meyers)

The literature in PE and education was reviewed to investigate the past, present, and prospects of competency-based teacher education (CBTE) and the preparation of physical educators. Recent thrusts in education emphasizing behavioral objectives and the systems theory approach to teaching are congruent with CBTE and have implications for the program in PE. Historically, however, the competency-based concept in PE is not new. An analysis of the 1948 professional preparation conference at Jackson's Mill (W. Va.) and the current components of CBTE are strikingly similar. Challenging hurdles for CBTE appear to be in the areas of assessment and evaluation. Most controversy focuses on who does the assessment and what criteria are used. Other problems occur during the implementation phase. Careful preimplementation and phasing-in plans are indicated. Even so, CBTE appears to be a sound alternative in teacher preparation and warrants exploration in the preparation of physical educators. The competency-based program should be developmental and flexible, and initiated as an alternative track to the existing teacher education program. Presently, because of the above problems, the dearth of developed teacher competencies, and the lack of an acceptable and fully conceptualized role of the PE teacher, the full impact of CBTE and professional preparation in PE is difficult to project.

TEACHERS COLLEGE, COLUMBIA UNIVERSITY, NEW YORK, NEW YORK (Bernard Gutin)

298. FISHMAN, Sylvia E. *A procedure for recording augmented feedback in physical education classes.* Ed.D., 1974, 356 p. (W. G. Anderson)

Preliminary steps in the development of an instrument for recording augmented feedback included the preparation of audiotapes, videotapes, and typescripts of secondary PE classes. From these typescripts, discrete items of augmented feedback were identified. Classification of items into a reasonable number of mutually exclusive categories and subcategories led to the development of the recording instrument. The instrument included 21 subcategories representing the codable units of behavior within the 6 major categories of augmented feedback; form, direction, time, teacher intent, general referent, and specific referent. The validity of the instrument was confirmed by experts. Instrument validity was also evaluated by determining the extent of subcategory use. The objectivity of the instrument was determined by analyzing the extent of agreement between 2 or more independent observers. In data recorded from selected units of feedback and from uninterrupted videotaped lessons, $\bar{x}$'s of 90.34% and 88.31% complete agreement overall were achieved. The reliability of the instrument was determined by analyzing the extent to which observers recorded the same behavior consistently over time. A mean of 91.98% self-agreement overall was achieved by 4 observers independently recording 60 units of feedback.

299. SKINNER, Ruth. *The decision processes during the acquisition of a complex motor skill.* Ed.D. in Physical Education, 1974, 138 p. (W. G. Anderson and A. M. Gentile)

Twenty JHS boys practiced a novel hockey skill in which an opaque screen was placed between *S*s and the target so that the outcome of the trial could be delayed. On each trial *S*s were asked to report "yes/no" decisions as to whether they had moved the way they planned. Following this, *S*s were informed of the outcome as a hit or miss. "Same/different" decisions of *S*s' movement intentions related to the next trial were recorded. A high-speed film record was made and a cinematographic analysis was conducted to compare the *S*s' verbal reports concerning his movement with the movement itself. In general, the results of this analysis support the reliability of *S*s' verbal reports concerning their movement. Significant differences in the patterns of "same/different" decisions were observed following each of the 4 possible "yes/no" movement and "hit/miss" outcome comparisons from the previous trial.

TEMPLE UNIVERSITY, PHILADELPHIA, PENNSYLVANIA

300. CHAPMAN, Sara A. *Development of movement education in the United States: Historical and theoretical bases, 1900–1960.* Ed.D. in Dance, 1974. (S. E. Davis)

301. COSTELLO, Gerald. *The construction and standardization of an instrument designed to measure the knowledge of male and female first and second year college students in the area of human sexuality.* Ed.D. in Health Education, 1974. (M. Levy)

302. FLACK, Rita W. *A comparison of the effectiveness of the movement oriented learning method with the traditional academic learning activities in developing cognitive concepts at the elementary level.* M.Ed. in Physical Education, 1974.

303. GLENN, Laura. *Effects of values clarification on concepts of self, heroin addict, marijuana user, amphetamine user, and barbiturate user.* M.Ed. in Health Education, 1974. (M. Levy)

304. HILL, Peter. *A survey of undergraduate students' involvement dispositions and participation in leisure-sports activities at an urban commuter university.* M.Ed. in Physical Education, 1974.

305. KAUFFMAN, Ira B. *Circadian effects on the acquisition of motor skill in children.* Ed.D. in Physical Education, 1974. (D. Hilsendager)

306. KELLER, James. *A descriptive study of a drug abuse prevention program delivery system.* Ed.D. in Health Education, 1974. (M. Levy)

307. NAGAFUCHI, Reijiro P. *A comparison of the self-correcting approach to the American Red Cross approach in teaching the American crawl stroke to fifth grade boys.* M.Ed. in Physical Education, 1974. (D. Hilsendager)

308. ROBERTS, Jean. *A cross-cultural study of college women's opinions on twenty sports for women and their participation in each sport.* M.Ed. in Physical Education, 1974.

309. SCHAFFER, Carlotta. *Skill and fitness development value of selected physical training programs for twelfth grade girls.* M.Ed. in Physical Education, 1974.

310. SHIPLEY, Roger-Lee. *Changes in contraception knowledge, attitudes and behavior in a college current health problems class.* Ed.D. in Health Education, 1974. (F. Jenne)

311. SPITLER, Diane L. *Acute and chronic effects of physical activity on the diastolic time components of the left ventricle.* Ph.D. in Physical Education, 1974. (P. Lynch)

312. TOMLINSON, Nikki. *The effects of Medicaid on the health practices of low income families in North Philadelphia.* M.Ed. in Physical Education, 1974.

313. WEINRAUB, Geraldine. *Comparison of individual and group testing procedures on physical fitness scores of elementary school students.* M.Ed. in Physical Education, 1974.

TEXAS A&M UNIVERSITY, COLLEGE STATION, TEXAS (L. J. Dowell)

314. BRITT, Bobbie, G. *A comparison of the effect of mechanical teaching aids on hitting a baseball*. Ph.D. in Physical Education, 1974, 161 p. (L. J. Dowell)
College students ($N = 128$) who were nonskilled in baseball were divided into 4 equal groups. *Ss* in the 3 exp. groups hit 10 balls a day for 20 training sessions from the Curvemaster Pitching Machine, Dudley Olympia Pitching Machine, or from the Batting Tee. On the same days of the week and at the same time of day pretest and posttest performance was measured by a Swing-Rite hitting instrument. Differences between group gains were compared. It was found that 20 practice sessions with the Batting Tee improved hitting performance of nonskilled players while 20 practice sessions with the Dudley Olympia and Curvemaster Pitching Machine did not improve hitting performance.

315. BURNETT, Thomas H. *An assessment of the vocational and social status of the professional football player*. Ph.D. in Physical Education, 1974, 162 p. (J. M. Chevrette)
Select items of the Vocational Inventory and Socio-Sport Profile Instrument for professional football players were administered to professional football players in the NFL. Face validity of the items used was determined by 6 professional football players and 3 educators specializing in sport sociology. It was found that most professional football players were college graduates, hold coaches in high esteem, felt that football participation has a positive influence on players character values, and tend to major in PE. Most professional football players play professional football for financial gain, love of the game, and self-satisfaction. The main disadvantages of professional football claimed by professional players were insecurity of the job and risk of physical injury.

316. ELLIOT, Gary E. *The motivational effect of simulated videotaping on bowling performance of college students*. M.S. in Physical Education, 1974, 36 p. (J. M. Chevrette)
Ss ($N = 165$) bowled 1 game on each of 4 consecutive class periods. The exp. group ($N = 82$) bowled in front of a videotape camera on the 3rd class meeting. ANOVA indicated no significant difference between the control and exp. groups bowling score on any of the 4 days of bowling. It was concluded that simulated videotaping does not provide adequate motivation to affect bowling performance of college students.

317. FIELDS, Tina T. *A study of the attitudes of Arkansas school superintendents concerning sex education classes*. M.S. in Health Education, 85 p. (C. W. Landiss)
Superintendents ($N = 330$) returned a questionnaire concerning the teaching of sex education. It was found that superintendents' attitudes toward teaching of sex education were not affected by age, sex, having children, marital status, or religious affiliation. Sex education reading of superintendents appeared to be a contributive factor in attitude toward teaching sex education. Superintendents felt rather strongly about not including certain topics in sex education classes.

318. GUINN, Robert K. *Characteristics of drug use among Mexican-American students of the lower Rio Grande valley*. Ph.D. in Health Education, 1974, 138 p. (C. W. Landiss)
Approximately 20% ($N = 2,324$) students in grades 9–12 enrolled in 71 SHSS in the Rio Grande Valley were surveyed by a self-report survey instrument. Of the total surveyed 1,789 were Mexican-Americans and of those, 254 were self-reported drug users whose results were used in this study. It was found that drug users tend to be from a higher socioeconomic level, lacked family stability, and lacked participation in school-related activities. The use of drugs by students was viewed as a normal pattern of behavior.

319. KATT, Bruce R. *The relationship between response time and selected baseball batting abilities*. M.S. in Physical Education, 1974, 69 p. (M. J. Little)
Varsity baseball players ($N = 33$) from 3 Southwest Conference schools were selected on the basis of 20 minimum times at bat in conference competition. Relationships between batting averages, slugging percentages, strike out percentages, base-on-balls percentages, and auditory and visual response time were calculated with multiple regression used to determine multiple r. There was little or no relationship between the variables studied.

320. SCHMIDT, Norma G. *Development of an instrument to evaluate the knowledge of elementary teachers about venereal disease.* Ph.D. in Health Education, 1974, 101 p. (C. W. Landiss)
Using objectives as a guide, a pool of multiple-choice questions was written. The items were revised for content validity, accuracy, and clarity by a panel of health professionals. After revisions to meet panel recommendations, a preliminary instrument of 65 items was administered to 100 ELE school teachers in the Brazos Valley of Texas. Item analysis indicated that 15 of the 65 items should be deleted. The revised form was administered to 108 ELE teachers. Following an item analysis, 45 items were combined into the *Schmidt V. D. Knowledge Evaluation.*

321. TIDWELL, Billy R. *The effects of gross-motor and fine-motor skill training on the perceptual-motor skills and the intelligence scores of kindergarten children.* Ph.D. in Physical Education, 1974, 191 p. (C. W. Landiss)
Kindergarten boys and girls ($N = 62$) were stratified on the basis of sex and race and randomly assigned to their groups: gross-motor skill training; fine-motor skill training; and control. *Ss* were trained for 30 min/day, 5 days/wk for 12 wk. *Ss* were pretested on the Purdue Perceptual-Motor Survey and posttested on the PPMS and Slossom Intelligence Test. The gross-motor training and fine-motor training can improve perceptual skills of kindergarten children as measured by the PPMS.

TEXAS TECH UNIVERSITY, LUBBOCK, TEXAS (M. E. Wilson and J. E. Burkhardt)

322. ANTRIM, Mary M. *The construction and validation of a basketball skill test.* M.Ed., 1972. 56 p. (M. S. Owens)
Analysis of the skill and pilot work resulted in a skills test consisting of dribbling, shooting and rebounding, and passing and catching. Using college women ($N = 26$), a validity coefficient of .74 was found when the criterion was the rankings determined by 3 judges and a reliability coefficient of .82 was estimated. Height of the performer was not significantly related to the test items or criterion, and shooting and rebounding test was the best single predictor ($r = .66$).

323. BAUER, Ralph W. *An evaluation of intramural programs within the Air Training Command of the United States Air Force.* M.Ed., 1973, 62 p. (E. Buchanan)
An instrument to evaluate the intramural program, originated by Teague and modified for this study, was sent to the 15 bases in the Air Training Command of the U.S. Air Force. Findings of this evaluation were based on 15 completed instruments. Eight (53.3%) base sport directors completed critiques of the original instrument which provided the basis for further revision of the evaluation instrument. The results and revised evaluation instrument were presented to authorities at the Air Training Command Headquarters.

324. CARROLL, Arthur E. *The effects of knowledge of results and level of aspiration upon the learning and retention of a psycho-motor task.* M.Ed., 1973, 53 p. (B. Kozar)
Eighty-four *Ss* divided randomly into 4 groups were given 15 initial learning trials followed 5 wk later by 10 retention trials. All trials were taken on a serial order manual dexterity task taken from a NASA console (Model 365). The task measured the *Ss*' ability to manipulate large objects with the preferred hand. Using the sequence of events of a typical knowledge of results (KR) study, the delay interval (R_1 to KR_1) was held constant and the effects of immediate and delayed level of aspiration (LA) on the post KR interval (KR_1 to R_2) were investigated. The analysis indicated that those *Ss* tested under learning conditions of immediate KR after R plus delayed LA learned at a significantly higher rate than those tested under conditions of immediate KR after R and immediate interpolated activity. *Ss* tested under conditions of immediate KR after R plus immediate and delayed LA both learned at a significantly higher rate than those tested under conditions of immediate KR after R plus delayed interpolated activity. Significant by trial comparisons and interaction differences were determined in initial learning. By trial comparisons were also found to be significant in both retention and goal discrepancy scores.

325. FUGATE, Judith R. *The relationship between a dynamic balance task and perceptual-motor development.* M.Ed., 1974, 33 p. (M. S. Owens)
Twelve ELE school children were tested for dynamic balance by means of the stabilometer and perceptual-motor development as determined by the Purdue Perceptual-Motor Survey. No significant relationships were found between the dynamic balance and any of the 5 areas of perceptual-motor development.

326. JONES, Jacquelyn B. *The effect of a physical activity program on asthmatic children.* M.Ed., 1974, 71 p. (M. S. Owens)
Sixteen children, ages ranging from 7 to 12, suffering from asthma voluntarily enrolled in a 10-wk period of physical activities. The Oregon Physical Fitness Test, the posture test rating scale of the New York State Physical Fitness Test, the Lipsitt Self-Concept Test, the Locus of Control Test, and the Locus of Evaluation Test were administered before and after the 10-wk physical activity period. Significant improvement in arm and shoulder strength and in abdominal strength was found. No significant improvement in posture and self-concept was observed.

327. NICHOLS, Leslie J. *An analysis of four different bat compositions in terms of time, distance, and velocity of the ball.* M.Ed., 1973, 31 p. (M. S. Owens)
After 4 warm-up hits, female volunteers ($N = 20$) proceeded to hit 5 balls with each of 4 bats, alternating after each hit in the following order: plastic, fiberglass, aluminum, and wood. Time and distance were measured between the batting tee, point of contact with ground, and final destination of the ball. Two-way ANOVA for the $\bar{x}$ scores and Duncan's New Multiple Range Test revealed significant differences for total distance and total velocity. The aluminum bat resulted in a greater total distance than the wood or plastic bats. For total velocity of the ball, the $\bar{x}$ scores of the aluminum bat were greater than those of the fiberglass and plastic bats, and the mean scores of the wood bat were greater than those of the plastic bat. Repeating the analysis for $\bar{x}$ scores for distance and velocity from the batting tee to ground contact resulted in a significantly greater distance with the wood bat than the fiberglass or plastic bats.

328. THOMAS, Shirley. *Comparison of two fitness batteries.* M.Ed., 1973, 92 p. (M. S. Owens)
The AAHPER Youth Fitness Test and the Oregon Motor Fitness Test were administered to 288 JHS girls. The stepwise multiple r and discriminant analysis were used and it was found that: a reduced (3 or 4 items) battery of the AAHPER items could adequately be used to approximate the group index yielded by the entire battery, i.e., unsatisfactory, poor, satisfactory, good, excellent; the Oregon and the AAHPER tests will yield group indexes that are interchangeable; and, reward and/or recognition did not affect the *Ss*' fitness performance.

329. TREADWAY, Gilley. *A cinematographic analysis of the tennis serve.* M.Ed., 1972, 91 p. (D. A. Horton)
Five male collegiate players were filmed to provide a descriptive analysis of the tennis slice serve. Preparatory, force developmental, and follow through phases were included. Magnitude, direction, speed, sequence, and timing of joint action were determined.

330. YOUNG, George C. *Selected safety factors: Impact and transmission of impact provided by baseball batting helmets.* M.Ed., 1973, 37 p. (B. Kozar)
Five youth and 5 professional model batting helmets were tested on an aluminum headform to determine if they could endure the impact of a pitched baseball. An accelerometer was built into the headform which gave a read out of KE transmitted to the headform. This read out was analyzed by a digital PDP-12 computer which gave the peak acceleration, total velocity change, absorbed energy, impact velocity, and rebound velocity. The helmets were dropped from 2 heights to create the KE of a baseball being thrown at 50, 60, 70, 80, 90, and 100 mph. There was no significant relationship between the price range of the helmets and the model of the helmets, the price range of the helmets and the acceptability of the helmets, and the model of the helmets and the acceptability of the helmets. 9 of the 10 helmets tested could not provide sufficient protection to meet the KE demands of a baseball thrown at 100 mph, but could meet those KE demands at lower velocities. Peak acceleration was found to increase significantly for both youth and professional model helmets with increases in velocity and there was no significant difference between youth model and professional model helmets with increases in velocity.

TEXAS WOMAN'S UNIVERSITY, DENTON, TEXAS

(Aileene Lockhart)

331. ADAMS, Madeline F. *The relationship between family size, ordinal position in the family, and participation in women's amateur softball in Texas.* M.A. in Physical Education, 1973, 110 p. (J. Rosentswieg)

A questionnaire was administered to 234 women amateur softball players to determine family size, categorized from only child to 5 or more siblings, and birth order categorized in the same manner. It was found that the most frequent age of those participating was 19 yr and the most frequent number of yr of participation by the *S*s was 3 yr. The statistical technique used was the χ^2 test of significance. Expected frequencies for family size and ordinal position were obtained from the data presented in the *Census of Population: 1960* and were based upon the percent of children born to women between the age range of 45–49 as this is the end of the usual child-bearing years. Family size and ordinal position were both significantly different ($p < .001$). It was concluded that family size and ordinal position are significant variables in determining participation by women in softball.

332. BAAS, Myra E. *A study of the relationship between motor creativity and verbal creativity in graduate students of dance and related arts.* M. A. in Dance and Related Arts, 1973, 71 p. (J. Rosentswieg)

The relationships between the Wyrick Test of Motor Creativity, the Torrance Tests of Creative Thinking: Verbal From A, choreographic experience, and yr teaching experience for students in dance and related arts ($N = 18$) was investigated. Moderate but significant relationships were found between the total motor creativity score and the total verbal creativity score and between motor creativity originality and verbal creativity flexibility, between motor creativity originality and verbal creativity elaboration, between motor creativity originality and the total verbal creativity score and between the motor creativity total score and verbal creativity elaboration. A significant relationship was found to exist between choreographic experience and verbal creativity and motor creativity, in combination. No other significant relationships were found to exist between either motor creativity or verbal creativity, either separately or in combination and choreographic experience and teaching experience.

333. BECK, Virginia. *A film analysis of foot action in relation to elevation obtained in a vertical jump as performed by semi-skilled dancers.* M.A. in Dance and Related Arts, 1973, 76 p. (M. Hinson)

Film records of 3 low performers, 3 average performers, and 3 high performers of the vertical jump supplied data for this investigation. These 9 *S*s represented the lowest, average, and highest performers of a normal sample of 60 *S*s in the modified Sargent Jump Test. Similarities and differences were noted among the groups from graphs of displacement and average velocities. Results indicated that the 2nd toe was the most important toe in the final stages in the performance of the vertical jump. Performers of the vertical jump who use their feet progressively, beginning with the heel, progressing then to the malleolus and the toes, are able to perform a jump which is successful as measured by its ht. A subproblem of the study was to determine the relationship of the length of toes to jumping elevation. No significant r was found.

334. BUCKMAN, Susan D. *A cinematographic analysis of the tour jeté.* M.A. in Dance and Related Arts, 1973, 80 p. (M. M. Hinson)

Analyses of side views of 3 skilled, 3 semiskilled, and 3 nonskilled dancers were completed by means of superimposed tracings and point and line drawings from film records made at 60 fps. A comparison of the 3 skill levels indicated that there were marked differences in the technique of the *tour jeté* as performed by the 3 groups. It was recommended that rotation of the torso should be initiated before losing ground contact and that a position in which the torso is leaning away from the jump be assumed to limit horizontal travel and increase vertical elevation.

335. COPELAND, Rosanna. *A cinematographic analysis of the tonic neck reflexes of young girls during the performance of a selected skill of balance.* M.A. in Physical Education, 1973, 83 p. (M. Hinson)

Fifteen 4th grade girls were filmed during their individual attempts to balance on a stabilometer. The film was analyzed to determine if the tonic neck reflex appeared in the form of a fencing position in the *S*s upper body postures. During the 5 sequences in which there were possibilities that the fencing position could have occurred, 1 *S* never flexed or extended her elbow joints, and 4 *S*s' head movements were in the wrong direction. Therefore, none of the *S*s appeared to use the tonic neck reflex to aid in their attempts to balance.

336. DAVIS, Scarlett A. *A cinematographic analysis of the clubhead velocity and acceleration of the full golf swing.* M.S. in Physical Education, 1973, 90 p. (M. Hinson)

Four nationally ranked women professional golfers were filmed at 330 fps as they executed the full golf swing with a driver, a 5 iron, and a 9 iron. The clubhead velocity and acceleration of the swings were determined. The study revealed that most of the *S*s were not able to maintain the clubhead speed through the impact area that they generated on the downswing pattern of the clubs. Maximum clubhead speeds were attained in areas ranging from 4 frames behind the ball in the downswing pattern of the clubs to 1 frame after impact with the ball in the follow-through pattern of the clubs. Of the 12 full golf swings, a total of 5 full golf swings with various clubs showed an acceleration of the clubhead after impact with the ball; a total of 6 full golf swings with various clubs showed a deceleration of the clubhead after impact with the ball; 1 full golf swing showed a consistent clubhead speed through 1 frame after impact with the ball. There was an overall similarity in the speeds generated by the 4 *S*s as well as an overall similarity among the patterns of performance; that is, *S*s who attained greatest speeds with 1 club did not tend to attain these same relative speeds with other clubs; *S*s who were fastest during the downswing were not necessarily fastest during the follow-through.

337. DUNCAN, Nancy L. *A study of the relationships between selected tests of strength, balance and flexibility of women aged sixty-five and older.* M.A. in Physical Education, 1973, 101 p. (J. Rosentswieg)

An ankle plantar flexion test of strength, the dynabalometer test of dynamic balance, and an ankle flexion and extension test of flexibility were administered to 47 women aged 65 and older. According to their lifestyle, *S*s were classified as living independently ($N = 17$), living with a relative or companion ($N = 15$), or living in a retirement home ($N = 15$). Pearson r for all *S*s tested revealed significant rs for tests of strength and balance, strength and flexibility, and balance and flexibility. Rank difference rs revealed significant relationships for the group residing with a relative or companion: for strength and balance ($p = .787$); for strength and flexibility ($p = .777$); and for flexibility and balance ($p = .598$). Significant rs were not found with the other 2 groups. It would appear that these women living with a relative or companion are more active as a result of their lifestyle than women living alone or than women living in a retirement home.

338. EARLEY, Phyllis J. *A cinematographic analysis of selected badminton strokes.* M.A. in Physical Education, 1973, 62 p. (M. Hinson)

The investigation entailed a cinematographic analysis of badminton strokes as performed by 3 skilled women players. The study was conducted to determine the exact point of racket contact with the shuttle and the arm movement factors which contributed to an effective contact during execution of the overhead clear and the smash. It was concluded that the shuttle is projected at an approximately 90° ∠ from the face of the racket during both strokes; the shuttle is projected at the approximately ∠ s of 26° and 11° from the horizontal for the clear and the smash, respectively; the shuttle is contacted above the head with extension of the striking arm, at a point above the forward foot in the clear and at a point above the forward foot in the smash; the greater the upward projection for the clear, the greater is the transfer of momentum from the racket head to the shuttle; the greater the downward ∠ of projection in the smash, the greater the velocity of the shuttle; and the patterns of movement of the striking arm during the foreswing of the racket for the clear and the smash are similar.

339. JOHNSTONE, Fonda Lou. *Health information of primary educable mentally retarded children as measured by the Davila Pictorial Health Information Test.* M.A. in Health Education, 1973, 140 p. (C. Sherrill)

EMR *Ss* ($N = 147$) between the ages of 8 and 10 were administered the Davila Pictorial Health Information Test by the classroom teachers and the investigator in 21 ELE schools in Dallas and Tarrant counties in Texas. One-third of the sample were readministered the test within 1 wk of the initial administration. The raw scores for the 147 students ranged from 10 to 28 with a $\bar{x}$ of 18.44, a SD of 3.96, and a standard error of the $\bar{x}$ of .33. The reliability coefficient for the test, as computed by the test-retest method, was .77.

340. LATHAM, Jacqueline Quinn Moore. *A biographical study of the lives and contributions of two selected contemporary black male dance artists—Arthur Mitchell and Alvin Ailey—in the idioms of ballet and modern dance, respectively.* Ph.D. in Dance and Related Arts, 1973, 1000 p. (A. S. Duggan)

A critical examination was made of the lives of Arthur Mitchell and Alvin Ailey with respect to each artist's contributions as a dancer, as a choreographer, as a teacher, and as a director of professional dance companies in his respective idiom of dance. Special emphasis was placed upon the unique contributions as a black male dance artist in contemporary society. Arthur Mitchell joined the New York City Ballet in 1955 becoming the first black dancer to serve as a permanent member of a major ballet company in the U.S. In 1968, he envisioned and developed the Dance Theatre of Harlem, Incorporated, which co-exists as a school serving the community, and a company serving black classical dancers. Alvin Ailey organized his own modern dance company in New York City in 1958. Beginning as an explorer of the roots of the black man,. he has expanded the repertoire of his company to include choreography of other outstanding American artists.

341. MAYHUGH, Shirley M. *The development of a pictorial rating sheet to be used to evaluate individuals playing a game of volleyball.* M.A. in Physical Education, 1973, 97 p. (M. Hinson)

A pictorial volleyball rating sheet, which rates court positioning, forearm pass, overhand pass, attack (spike), block, and overhand serve was developed. Female, competitive SHS volleyball players were used as *Ss* ($N = 99$). A manual was developed to accompany the test. The test was found to be reliable ($r = .87$), valid ($r = .80$), and objective ($r = .72$).

342. MONTGOMERY, Winnie LaWon. *The relationship between intramenstrual phases and selected physical activities.* M.A. in Physical Education, 1973, 119 p. (J. Rosentswieg)

Volunteer females ($N = 20$) were administered 4 separate physical performance tests during 5 selected phases of the menstrual cycle. The physical performance tests administered were a 20-yd dash for velocity, the Hill inertia wheel test for power, the Fleishman bend, twist, and touch test for dynamic flexibility, and the Benson patterned jump board test for dynamic balance. Each *S* participated in all 4 tests during the 1st, 7th, 14th, 21st, and 28th days of 2 consecutive menstrual cycles. A 1-way ANOVA with repeated measures was calculated for the data from each test. Although some fluctuations in physical performance were observed, the ANOVAs revealed no statistically significant differences between the intramenstrual phases which were measured. It was, therefore, concluded that differences in performances on physical parameters were not a result of effects of the menstrual cycle.

343. ORTIZ, Carmen D. *The relationship between oxygen consumption and cardiovascular and pulmonary measurements in adult women.* Ph.D. in Physical Education, 1973, 112 p. (M. Hinson)

Using 47 university women, 5 step tests and 6 cardiovascular and pulmonary tests were administered, and the collected data were correlated with laboratory determinations of VO_2. Simple *r*s were computed to determine the reliabilities and validities of the step tests; multiple *r*s were computed to determine if selected cardiovascular and pulmonary measurements have any effect upon the relationship between scores on the step tests and VO_2. The specific cardiovascular and pulmonary responses measured were the following: horizontal blood pressure, vertical blood pressure, horizontal HR, vertical HR, HR 2 min after treadmill exercise, and FEV_1. The step tests yielded the following validity *r*s: Harvard .59; Lindsey .59; Queen's College .58; Armstrong .57; and Kent State .09. The step tests yielded the following reliability *r*s: Harvard .87; Lindsey .57; Queen's College .77; Armstrong .86; and Kent State .39. The highest multiple *r* was found between VO_2 and the Queen's College Step Test, vertical HR, and horizontal pulse pressure ($r = .71$).

344. TOULMIN, Martha L. *The development of an original instrument to measure the expressed attitudes of children toward the elementary school program of physical education*. M.A. in Physical Education, 1973, 159 p. ((C. Sherrill)

Data used in establishing the reliability and validity of the scale were collected from students ($N = 674$) in 3 of the 7 ELE schools in the Carrollton-Farmers Branch Independent School District, Texas. Validity was established by a Pearson r between attitude scores and self-rating scale, and internal consistency was examined by the known groups method. Reliability was established through use of a split-halves technique corrected by the Spearman-Brown Prophecy Formula. It was concluded that the Toulmin Elementary Physical Education Attitude Scale has acceptable validity and is a highly reliable measure for ELE school children of both sexes in grades 4, 5, and 6. The attitudes of ELE school age children are very favorable toward PE in general.

345. WILLIAMS, Janice. *The relationship between a four-week exercise program and urinary catecholamines in women*. Ph.D. in Physical Education, 1973, 105 p. (M. Hinson)

It was the purpose of this investigation to determine urinary excretions of catecholamine and epinephrine before, mid-way, and at the conclusion of a 4-wk physical exercise program using 13 volunteer women between the ages of 30 and 40 yr as *S*s. Data were collected on the following variables: treadmill revolutions, $\dot{V}O_2$, resting and exercise epinephrine excretions, and resting and exercise total catecholamine excretions. Based upon the findings, it was concluded that adrenal secretions of total catecholamines as well as of epinephrine decrease significantly and linearly in response to continued submaximal exercise. Continual submaximal exercise does not, however, tend to alter resting levels of total catecholamines or epinephrine. It was concluded further that 15-min periods of exercise at a HR of 150 ± 5 bpm performed 3 days/wk for 4 wk is sufficient to cause alteration of adernal secretions in adult women.

346. WILSON, Rebecca Lynn. *An evaluation of state-approved textbooks for health education*. M.A. in Health Education, 1973, 127 p. (J. Rosentswieg)

State-approved textbooks on the HS HE I level in Texas were studied for the degree of agreement with the *Secondary School Health Curriculum Guide*, approved by the Texas Education Agency for the year 1973–74. A comprehensive description of the information was summarized in checklist form to allow a systematic analysis of the content of information in the state-approved textbooks. The criteria were established according to concepts, subconcepts, and topic sentences located in the *Secondary School Health Curriculum Guide* under 10 basic areas of health. A rank order of the state-approved textbooks according to overall information and the information contained in each of the 10 categories was determined. It was noted that none of the approved textbooks contained more than 75% of the information mentioned in the *Secondary School Health Curriculum Guide*.

TRINITY UNIVERSITY, SAN ANTONIO, TEXAS (Bob Strauss)

347. KNEISLEY, Nancy S. *The relationship of static balance with mental abilities of selected first-grade students*. M.S. in Physical Education, 1972, 46 p. (B. Strauss)

Static balance and academic ability scores were collected on 92 randomly selected 1st graders. Correlations and intercorrelations were calculated on the *S*s for total group and independently for the boys and girls as to total scores and subtest scores of the Primary Mental Abilities Test, K–1 Edition with the Modified Stork Balance Test. The data which were collected from each *S* were analyzed and no linear significant relationship was found between the MSBT and the PMA K–1. It was also found that the boys performed better than the girls on the MSBT, while the girls performed better on the PMA K–1. The investigator suggests that lack of physical maturity and low test reliability might have accounted for results on the MSBT too heavily.

348. TAYLOR, Elizabeth R. *Relationship of hand reaction time with intellectual ability and academic achievement of selected first grade students*. M.S. in Physical Education, 1974, 58 p. (B. Strauss)

Hand RT, intellectual ability, and academic achievement scores were collected on randomly selected 1st graders ($N = 75$). A modified form of the Nelson Hand Reaction Test was administered at the beginning of the school year to determine the *S*s' hand RT. The Primary Mental Abilities Test, K–1 Edition administered at the beginning of the year provided an index to the students' level of academic ability. The Stanford Achievement Test, Primary Battery-1, was administered at the end of the school year to determine academic achievement. A significant low positive r was found between subtests perceptual, (speed and spatial) relation of the PMA K–1, and the MNHRT. Significant intersex differences (t ratio) were found between scores on the MNHRT and the PMA K–1. No significant difference occurred between scores on the MNHRT and subtest scores of the SAT PB–1. A significant difference existed between boys' and girls' scores on the MNHRT, the PMA K–1, and the SAT PB–1.

349. TULLO, Thomas W. *The relationship of motor ability with academic aptitude and achievement of selected third graders*. M.S. in Physical Education, 1973, 53 p. (B. Strauss)

A stratified random sampling of 3rd grade students ($N = 60$) were tested and placed into a stratum developed according to IQ scores as measured by the Short Form Test of Academic Aptitude. Thirty *S*s with an IQ of 84 or below and 30 *S*s with an IQ of 116 or higher were randomly selected from each stratum. Correlations were calculated to determine relationships among tests of aptitude, achievement, and motor ability as measured by the Motor Behavior Screening Test used in the Trinity University Motor Behavior Learning Laboratory. The analysis of the data led the author to conclude that IQ and achievement related significantly to motor ability for the entire sample; a significant difference existed in motor ability of superior and low IQ *S*s; a significant difference existed in motor ability of superior and low achieving *S*s. Also, significant relationships were found between the MBST and each academic test for the low performing group, for the high performing group, and the entire sample.

UNIVERSITY OF ALBERTA, EDMONTON, ALBERTA, CANADA

(Rex W. Thomson)

350. AITKINS, Cathy. *Effects of teacher expectations on student achievement in swimming*. M.A. in Physical Education, 1974, 63 p. (R. W. Glade)

Three problems were examined: the exp. manipulation of teacher expectations; the effects of teacher expectations on teacher behavior; and the effects of teacher expectations on the student's self-rating of, and improvement in, swimming. There was no reason to believe that teacher expectations had been successfully manipulated and therefore no conclusions could be drawn related to the effects of teacher expectations on teacher behavior and student behavior.

351. ALAIN, Claude. *Distance and location cues in motor short-term memory*. Ph.D. in Physical Education, 1974, 111 p. (E. Buckolz)

The exp. task involved *S*s reproducing distances or locations by displaying a cursor along a linear track. In determining how long kinesthetic-location (KL) information could be retained, indications were that this type of information could be maintained intact for a period of 20 sec. In determining how *S*s used their attention to retain KL information, indications were that *S*s did not use their attention to cognitively transform the material to be stored. It appeared more likely that *S*s merely concentrated on the KL in its raw form.

352. BLACKBURN, Cecil R. *The development of sports in Alberta, 1900—18*. M.A. in Physical Education, 1974, 505 p. (R. G. Glassford)

Newspapers, selected from the major geographical regions, were the principal sources of information. The growth and expansion in sport kept pace with the far-reaching changes which were manifest in the social, economic, and political climate of this era. Major forces affecting the evolvement of sports included the amateur-professional ethic; churches; educational institutions; various ethnic groups; YMCAs; local, provincial, and Dominion holidays; technological changes; increased participation by women; and WW I. Between 1900–14 involvement in sports, from both participant and spectator standpoints, grew at a phenomenal rate due, for the most part, to the mass influx of immigrants. For the remaining years of this era, from 1914–18, the impact of the war retarded the progress of most sports.

353. BLAKELY, Valerie W. *The relationship of alienation to highly organized sport*. M.A. in Physical Education, 1974, 57 p. (R. B. Alderman)
The sample consisted of 125 JHS boys (av. CA = 14 yr), 60 selected from a division of the Edmonton Metropolitan Hockey Association and 65 nonhockey players selected from a pool of JHS students. The sample was divided into low, middle, and high socioeconomic groups according to the Blishen socioeconomic scale. Of the hockey sample, 57% had 4 yr or less playing experience, 22% had played for 5 yr, 15% for 6 yr, 3% for 7 yr, and 3% for 8 yr. The hockey sample had a higher representation from the lower class, while the nonhockey sample had a slightly higher representation from both the middle and high SES. There was no significant difference between participants and nonparticipants in their feelings of general powerlessness or school-related powerlessness. While no support was found for differences between the hockey and nonhockey groups, there was a reported difference between the SES groups. Feelings of alienation seemed to be more a function of SES rather than whether boys play hockey or not.

354. BRODERICK, Kathleen E. *A normative study of track and field events for the Alberta Special Games*. M.A. in Physical Education, 1974, 42 p. (M. Ellis)
*S*s were the 1199 individuals participating in the track and field events in the 1972 and 1973 Alberta Special Games, classified according to sex, age, and level of competence. The age groups were designated as jr., int., and sr. The participants were classified as EMR or TMR on the basis of IQ. Tables of norms were compiled for each of the events with the performance scores calculated at every 5th percentile. The variability of the normative tables could have been a result of the wide range within the 3 age groups and the 2 levels of competence. The EMR performed significantly better than the TMR on all but 3 events, the t tests being significant ($p < .05$). The EMR and TMR boys performed at a significantly higher level than the EMR and TMR girls, respectively.

355. CARY, Susan M. *The effects of pair-feeding and exercise on the utilization and mobilization of energy sources of trained and nontrained rats*. M.Sc. in Physical Education, 1974, 122 p. (A. W. Taylor)
Fifty-four male Wistar rats were randomly assigned to a pair-fed and an ad-libitum feeding group with half of the animals in each group trained to run on a rodent motor-driven treadmill 5 day/wk, for 1 hr/day at 26.8 m/min for 9–13 wk. Approximately half of the exercised animals were sacrificed immediately following an exhaustive run of 2–2.5 hr. All other animals were sacrificed at rest. Chronic moderate exercise had little effect upon organ wt., glycogen storage, and FFA concentrations. Slightly increased adrenal and greatly decreased epididymal fat pad wt. were found in chronically exercised rats. Exhaustive exercise resulted in a decrease in spleen and liver wt., decreased liver glycogen values, and increased plasma and tissue FFA concentrations. Pair-fed animals demonstrated significantly reduced total body and organ wt. as compared to the ad-libitum fed animals. No additional dietary effects were noted.

356. DANIELSON, Richard R. *Leadership in coaching: description and evaluation*. Ph.D. in Physical Education, 1974, 124 p. (R. B. Alderman)
A sample of 48 hockey teams from 4 leagues in the city of Edmonton were used, and analyses performed on 506 players and 40 coaches representing 10 teams from each league. Two questionnaires were used with the athletes, and a sport-specific observational schedule was used with the coaches. There were 3 unrelated dimensions of classification of hockey coaches on the basis of personal data; there were 4 team interpersonal environments obtained as a result of athletes' joint perception of coaching behavior and team environments; there were 2 styles of coaching in the analysis on observational coaching behavior; coaches with either less than average experience or more than average playing experience were found to be related to team environments perceived as being coach-dominated, coaches with more than average experience were associated with player-dominated environments, and coaches with higher than average interpersonal motivation were associated with goal-dominated environments.

357. GAUTHIER, Roger R. *The reliability of gymnastic ratings and gymnastic judges*. Ph.D. in Physical Education, 1974, 128 p. (R. B. J. Macnab)

ANOVA was used to estimate the reliability of judges' ratings in gymnastic competition. The coefficients of reliability of the ratings were closely related to the range of ability of the athletes. Higher coefficients were obtained for a heterogeneous group of athletes, whereas, lower coefficients were observed for a more homogeneous group. The reliability of each judge was determined by the principal components method of factoring. A unifactor model was proposed, and it was suggested that the largest eigenvalue extracted from the factorial analysis of the ratings of each event be used to estimate the quality of the ratings and the raters. The comparison by rank r of 4 methods of assessing the performance score did not suggest to any large extent the superiority of 1 method over another.

358. GRIFFEN, John C. *The mechanical efficiency of treadmill running in pre-pubescent boys*. M.Sc. in Physical Education, 1974. (M. Singh)

Forty-six boys (CA = 9.3–12.9 yr) were classified into 3 groups with respect to age. Each S was tested 3 times within a span of 7 wk. There were no significant differences between the age groups; however, the older group of boys obtained the highest mechanical efficiencies (ME). The $\bar{X}$ ME for the entire sample was 23.82%. Stride length ($r = .44$) and leg strength ($r = .32$) correlated significantly with ME. The application of partial rs on these variables revealed that when age was held constant, the r of stride length and ME remained significant ($r = .37$). The r between observed and predicted ME was significant ($p < .01$) ($r = .43$). A significant improvement was shown in ME between both the 1st and 2nd trials and the 2nd and 3rd trials. The oldest group demonstrated the greatest rate and extent of skill improvement over the 3 trials. This period of prepubescence appears to be a time when practice will elicit significant improvements in the pattern of running.

359. HAWLEY, Donna L. *Legal liability of Canadian physical education teachers*. M.A. in Physical Education, 1974, 170 p. (R. G. Glassford)

The duties of PE teachers were examined with regard to students in regular PE classes, during extracurricular sports and play, and during traveling to approved activities. It is breaches of these duties which give rise to liability. An introduction to common law, negligence law, and the position of children in tort law and a study of the case law as it relates to PE teacher liability were presented.

360. HYRCAIKO, Dennis W. *Social facilitation effect as perceived by athletes*. M.A. in Physical Education, 1974, 86 p. (R. B. Alderman)

The sample was limited to male athletes ($N = 35$) participating on a team involved in 1 of 4 competitive athletic activities, these latter involving competition in a specific social situation. There were no significant differences between the athletes of selected competitive physical activities on perceived social facilitation. The characteristics of an activity, such as physical contact and individual performance, are more conducive to increasing anxiety than other factors such as presence or absence of an audience.

361. IRWIN, Donald A. *A study of stride length and stride rate changes after high speed treadmill and sprint training*. M.Sc. in Physical Education, 1974, 82 p. (M. Singh)

Three groups were randomly created from a ranked list of 100-m performance times. Each S was filmed while running the 100 m before, midway, and following a 7 wk, 30 training session program. A multiple ANOVA was computed on both stride length (SL) and stride rate (SR) scores. Significant F scores were found in 2 cases: the SL changed significantly in all groups and in all testing periods as the runner progressed through the 100-m distance; there were significant differences in SR in all runs between various segments of the race. There were no significant differences between training groups or testing times on either SL or SR.

362. KLAVORA, Peter. *State anxiety and athletic competition.* Ph.D. in Physical Education, 1974, 121 p. (R. B. Alderman)
Several hundred athletes on different levels of competition across different sports were repeatedly administered a state anxiety inventory under 2 different exp. conditions: stressful (before game time) and nonstressful (practice). After every game, the performance of each *S* was evaluated and recorded. When the relationship between state anxiety and performance in this basketball was studied for *S*s who differed on trait anxiety and overall competitive M state anxiety, 2 similar in shape, separate, but qualitatively different bell-shaped curves emerged which were allocated at different levels on the A state scale continuum.

363. LAPPAGE, Ronald S. *Selected sports and Canadian society.* Ph.D. in Physical Education, 1974, 335 p. (R. G. Glassford)
The regional development of sport in Canada was examined and the outstanding features of sport in each of these regions were studied with emphasis placed on the extent of U.S. and British influence and the effect of climate on sport. Interregional competition was usually restricted to national championship events, and each region looked to the adjacent area of the U.S. for regular competition. When East-West competition did occur intense interest was generated, especially if the eastern team was from Ontario. The role of sport in Canada's relationship with other countries was also discussed; in contrast to Canada's isolationist policy in foreign affairs, this country's involvement in international sport increased during the 2 decades under investigation. Sport played an important part in maintaining Canada's tie with Britain and the Commonwealth. The growth of U.S. influence in Canada was readily apparent in sport.

364. MacKAY, Ike D. *A comparison of the effects of modified soccer games on eight and nine year old boys.* M.A. in Physical Education, 1974, 81 p. (S. G. Robbins)
Two pilot games were played (1 by 8-yr-old boys, and 1 by 9-yr-old boys) followed by 8 study games alternately played by 8- and then 9-yr-old boys. Eight-yr-olds ($N = 6$) and 9-yr-olds ($N = 6$) were randomly selected, and these boys were observed throughout all study games for the number of touches and possession time of the ball. Two boys from each group of 6 were randomly selected to wear pedometers throughout all study games. Recordings were tabulated after each 30 min of play. Immediately after the first 2 study games the 12 observed boys were interviewed to try to determine their attitudes toward the study games. In general, the *S*s touched the ball significantly more times and kept possession of the ball significantly longer while playing scaled-down soccer games than while playing regulation size soccer games. There was no significant difference in distances traveled between games on both field sizes. The *S*s expressed a fairly even preference to field size.

365. MacKENZIE, Duncan. *The identification of the differences in the expressed needs, interests, and expectations of grade seven and nine students enrolled in the Edmonton Christian family life education program.* M.A. in Physical Education, 1974, 160 p. (A. W. Eriksson)
Four developmental tasks were selected to measure the variables, and a questionnaire was administered to *S*s sampled from 8 classes randomly selected from 8 jhss providing family life education. Grade 7 *S*s ($N = 129$) felt a greater need than grade 9 *S*s ($N = 76$) to understand themselves, their sexual changes, the issues relating to petting, parent communication, and family relationships. Females felt a greater need to understand the emotional influences of petting and the feelings of other family members. *S*s of both grades are aware of their needs and are prepared to express them when permitted. Though differences were insufficient to warrant separate teaching for boys and girls, provisions that considered different grade and sex interests seem desirable.

366. MALONEY, T. Lawrence. *Job satisfaction among physical educators at English-speaking Canadian universities*. Ph.D. in Physical Education, 1974, 174 p. (M. L. Van Vliet)
There were 3 central concerns: the relationship between satisfaction and preferred-perceived discrepancy; the relationship between global and specific measures of satisfaction; and the relationship between selected demographic and biographic variables and satisfaction. Two specifically designed questionnaires were used, and from 32 universities a 59.9% return was realized. Satisfaction levels for job-specific aspects of the work environment were significantly related to preferred-perceived and employer-employee discrepancy levels. Satisfaction with the job as a whole was consistently and significantly related to satisfaction with the job-specific aspects of the work environment. A number of significant relationships resulted from the analyses of demographic and biographic variables in relation to satisfaction levels.

367. NATTRASS, Susan M. *The development of international clay pigeon shooting*. M.A. in Physical Education, 1974, 160 p. (G. Redmond)
The beginnings of trap-shooting—popinjay shooting and then live pigeon shooting—were discussed as a background to the significant "Glass Ball" era of the latter part of the 19th century. The subsequent appearance and development of the clay target and clay pigeon shooting were examined in detail, with particular reference to national and international competitions and organizations. Emphasis was laid upon Canadian aspects of the sport at appropriate times.

368. NIELSON, Arne B. *Physical activity patterns of senior citizens*. M.A. in Physical Education, 1974, 122 p. (R. O. Anderson)
Data were collected by interviews in conjunction with response-choice lists. Chi-square analyses were used to determine the extent of interrelation between senior physical activity level and various other factors. Although domestic and everyday physical activity held constant from youth to old age, there was a general shift from strenuous and vigorous sports activities during youth to less vigorous lifetime types of activities during the senior years. There was an overall decrease in the physical activity variety from youth to old age, but there was a significant relationship between middle age physical activity variety level and senior variety and physical activity participation levels. The primary reasons for taking part in physical activity during the senior years were: concern for health, to relieve tension, to get exercise, for the pleasure of feeling good.

369. POWER, Hayden. *Professional socialization of physical education teachers*. M.A. in Physical Education, 1974, 123 p. (S. G. Robbins)
The desirability or otherwise of intensive competition for children aged 6–12 yr was the phenomenon used to discover whether the professional socialization of PE teachers in a particular socialization context inculcated attitudes which differed from those expressed during the 1st year of the formal training period. An attitude scale was used to determine and compare the attitude of 4 groups, these groups comprising the entire population of students enrolled at the University of Alberta in the 1st and 4th yr of the BPE program, graduates of this program enrolled in the Professional Diploma After Degree program, and PE teachers who had completed these 2 programs and who had been teaching PE for 3–5 yr. The attitudes were found to differ at varying stages of professional socialization. PE training appears to result in attitude changes which subsequently could render these individuals more suitable to supervise, coach, and administrate intensive competition situations for children. A later reversion to formerly held attitudes indicated that the degree of internalization of the role and its manifestations in the form of attitudes were apparently not substantial.

370. QUINNEY, H. Arthur. *The relationships and influence of three selected variables on the aerobic capacity of citizens of an urban Canadian community*. Ph.D. in Physical Education, 1974, 205 p. (R. B. J. Macnab)
Ss ($N = 1230$) were male and female volunteers (CA = 14–74 yr), and the 3 selected variables were physical activity level, smoking habits, and fatness. The test data obtained on each *S* included aerobic capacity (AC), triceps fat, ht., wt., age, physical activity level, and smoking habits. *Ss* were grouped by age and sex, and within these 12 groups high and low AC groups were created and found to be significantly different on the stratifying variable (predicted VO_2 max).

Multivariate analysis was employed to examine the combined effect of the 3 selected variables in differentiating high and low AC groups. These 3 variables combined were significantly different between the AC groups for male and female age groups 14–19 yr, 30–39 yr, 40–49 yr, and for male age groups 20–29 yr. High AC male and female groups were significantly different from each other at each age level on the combined effect of the 3 variables.

371. SCHULHA, Dale H. P. *The physical work capacity of intercollegiate football players during a season of training*. M.Sc. in Physical Education, 1974, 127 p. (S. W. Mendryk)

Beginning of preseason, end of preseason, and end of regular season PWC scores of 26 intercollegiate football players were compared after testing throughout the 11-wk training period with a modified Sjostrand PWC_{170} test. There were significant increases between beginning of preseason and end of preseason M PWC_{170} and PWC_{170}/kg scores for the *S*s as a group, and between beginning of preseason and end of preseason M PWC_{170} and PWC_{170}/kg scores for defensive linemen. No significant differences were found: between beginning of preseason and end of preseason M PWC_{170} and PWC_{170}/kg scores for offensive linemen, offensive backs or defensive backs; between beginning of preseason and end of regular season M PWC_{170} and PWC_{170}/kg scores for the *S*s, both as a group or for any of the 4 positions; between end of preseason and end of regular season M PWC_{170} and PWC_{170}/kg scores for the *S*s, both as a group or for any of the 4 positions; in M PWC_{170} and PWC_{170}/kg scores between any of the 4 positions at the beginning of preseason, at the end of preseason, or at the end of the regular season.

372. SMITH, Garry J. *An analysis of sport as a vehicle for social integration*. Ph.D. in Physical Education, 1974, 354 p. (M. L. Van Vliet)

Data were collected in personal interview sessions with 164 residents of Edmonton, Alberta. The research instrument was a 114-item questionnaire designed to assess dimensions of sport association such as: sport saliency, sport team loyalties, sport hero worship, and the frequency of sports conversations. In addition, there were questions seeking basic demographic information. The sample consisted of an almost equal number of males and females and an approximately equal representation from all socioeconomic categories. An association with sport was closely related to such social characteristics as sex, age, and SES. In general it was male *S*s, younger *S*s, and upper SES *S*s who had the closest association with sport. Significant differences were found between the sexes with respect to: personal definitions of the word "sport"; sport saliency score; the degree to which *S*s considered themselves to be sports fans; their choice of a favorite spectator sport; their frequency of using the mass media as a source of sports information; and the frequency of their sports conversations in various situational contexts. It was felt that sport had the potential to be socially integrative because it provides a common interest for large numbers of people.

373. SPIER, David L. *The influences of warfare on the recreational activities of the ancient Assyrians and Iranians*. M.A. in Physical Education, 1974, 234 p. (R. G. Glassford)

An attempt was made to relate each recreational activity to warfare, and where this was not possible, to relate the particular activity concerned to 1 or more of the cultural phenomena of religion, social structure, education, economics, and politics. A considerable amount of evidence was found which tended to suggest that the high incidence of warfare in ancient Assyria and Iran did have some effect on the nature of the recreational activities participated in by the Assyrian and Iranian peoples. Notable among these activities were equestrian-related pasttimes, archery, spear-throwing, and hunting.

374. WILLIAMS, Jean L. *The effect of protective equipment on the actual and perceived body-space relationship of ice hockey goalers aged eight to fourteen years*. M.A. in Physical Education, 1974, 100 p. (R. B. Wilberg)

The Self-Image Perception Test was used to measure the sizes of body parts and the total body area as perceived by the goaler in full equipment. A goal construction task was designed to measure the difference between perceived body size, with and without equipment, in relation to the perceived ht. and width of the goal. A blocking device was designed to measure the area of the goal the goaler thinks he blocks with his body. Goalers frequently do not make a realistic assessment of the relation between their body size and the goal size. Goalers make an accurate

judgment of the dimensions of the goal, so any misjudgment of body/goal spatial relationships will probably be a result of their perception of their own body size. A goaler's estimate of his body size appears to be related to a total body image rather than any form of visual or mirror image he may have. Somatic and spatial perception can be affected by the wearing of heavy protective equipment.

UNIVERSITY OF ARKANSAS, FAYETTEVILLE, ARKANSAS (G. Moore)

375. BURNS, G. Robert. *Effects of three running regimens on muscle glycogen stores and vascularization of skeletal muscle of rats.* Ed.D. in Physical Education, 1974, 85 p. (G. Moore)

Six treatment groups were used: CON ($N = 10$) served as a sedentary control, received no exercise treatment; PRE_1 ($N = 5$) were sacrificed after 2 wk pretraining; PRE_2 ($N = 5$) received no exercise after pretraining with 1 to 4 work/rest ratio; RP ($N = 13$) received continuous running. Speed and duration of the programs progressively increased throughout. The left gastrocnemius muscles were used to obtain values for: glycogen stores, capillaries/sq mm, fibers/sq mm, and capillary-muscle fiber ratios. Daily body wt. was also analyzed. Results indicated training for 8 wk was sufficient to produce a general training effect as indicated by body wt. All 3 exercise treatments gained significantly less wt./day than CON. There were no significant differences as to glycogen stores. Both sizes of muscle fibers and number of capillaries per muscle fiber were significantly greater in exercise than CON with no significant differences between exercise regimes.

376. CAMERON, David A. *The effects of three types of exercise programs upon physical work capacity and selected anthropometric measures.* Ed.D. in Physical Education, 1974, 106 p. (G. Moore)

*S*s were male and female sedentary adults 24 to 60 yr of age divided into 4 groups: Exer-Cor Crawling, Exer-Cor Striding, bicycle ergometer, and control. The training protocol for each exp. group was identical with only the mode of exercise varying. The 10-wk program consisted of 5 sessions/wk at a work intensity great enough to bring the HR between 70% to 80% of their age predicted maximum HR. The groups were compared with each other on a weekly Ohio State University-Step Test and resting HR, exercise HR, HR recovery, total body wt., percent body fat, and girth measurements at 6 sites. Results indicated the bicycle ergometer and Exer-Cor Crawling groups made significant gains on OSU Step Test while Exer-Cor Striding and control groups did not. Significant differences among groups occurred after only 1 wk of training and were noted through the program. The bicycle ergometer group showed the greatest gains on the OSU Step Test initially and throughout the program but was not significantly different from the Exer-Cor Crawling group at the end of the program.

377. CLEEK, Don Edward. *Functional adaptions to running training.* Ed.D. in Physical Education, 1974, 95 p. (G. Moore)

The members of 3 intercollegiate cross country teams ($N = 27$) were tested before and after 13 wk of training and competition. The basic tests were max vO_2, ankle plantar flexion strength, competitive performance, and miles/wk of training. Other measures were body wt., age, yr of running experience, and the occupations of the *S*s' fathers. The multiple r to predict pre-post max vO_2 differences from both pretest and posttest max vO_2 was $r = .605$. When the beginning max vO_2 was partialed out, r was .546. Predicting pre-post max vO_2 difference from both wt. change and pretest wt. yielded an r of .197 and $r = .160$ when wt. change was held statistically constant. Predicting performance from both miles/wk and postmax vO_2 on a within school yielded r's of .983, .963, and .949 for the 3 schools. Correlations between ankle plantar flexion strength and performance for the 3 teams were −.159, 1 − .340, and .078. Posttest max vO_2, father's occupational energy expenditure yielded an r of .566.

378. GATES, John L. *The validity of selected structural and functional measures in predicting potential gymnastics ability for the purpose of homogeneous grouping.* Ed.D. in Physical Education, 1974, 99 p. (R. Ryan)

Three structural, 5 functional, and 4 measures generated by combining some of these were used to predict success in various gymnastic skill areas. The predicator variables were: sitting ht.,

standing ht., wt., dominant hand grip, sustained hand grip, dips, pull-ups, vertical jump, trunk hyperextension, ratio of standing ht. to sitting ht., ratio of wt. to ht., and the ratio of sitting ht. to trunk hyperextension. The criterion test was the grading of skill from a filmed performance. Stepwise multiple regression was used to form predictive equations for the 4 areas (parallel bars, trampoline, tumbling, and rings) plus all possible combinations of these areas. Of the predictor variables, dips, sustained hand grip, wt., and pull-ups were the variables most frequently selected to predict ability in the area of gymnastics. Of the 15 reduced model equations formed, the highest multiple R was for ring skills with an R of .751 and a standard error of estimate of 3.573.

379. SIMS, Russell A. *A comparison of the effects of two physical fitness programs on the cardiovascular fitness of middle-aged men.* Ed.D. in Physical Education, 1974, 136 p. (G. Moore)

A developmental program ($N = 20$) consisting of calisthenics, weight lifting, and jogging was compared with a half-court basketball program ($N = 19$) relative to changes in cardiovascular fitness, total body wt., skinfold measures, and lung volumes. A control group ($N = 15$) was also used. The *S*s were male volunteers 25 to 60 yr of age. The programs were 50 min/day, 3 day/wk for 12 wk (Feb.–May). The criterion measure was the Ohio State University Step Test. The results indicated that all 3 groups made significant improvements on the OSU Step Test scores with the 2 exercise groups improving significantly more than the control but not from each other. On wt. loss, the control was unchanged with the developmental group significantly lower and the basketball group significantly lower than both. Percent body fat reductions were significantly less for all 3 groups with the exercise groups having greater reductions than the control.

380. TOOTHAKER, Ronald W. *The professional preparation and assignments of selected high school coaches in Arkansas and the need for specialized certification.* Ed.D. in Physical Education, 1974, 258 p. (G. Moore)

Similar questionnaires were distributed to coaches and administrators of all schools in Arkansas ($N = 175$) offering all 3 major sports of football, basketball, and track and field. Returns were received from 87% of the administration and 83% of the coaches representing all 5 athletic classifications of schools. Results showed that for the coaches 81% were PE majors; 28% possessed a master's degree; 97% attend professional coaching clinics with 47% attending at least 2 per yr; 65% have participated in their sport in college; 83% contributed their preparedness for coaching to HS experience, 62% to college playing experience, and 29% to college course work; 20% were teaching PE full time, 30% were teaching full time other than PE, and 35% were teaching split assignments; 85% received additional salary for coaching; and 57% indicated a need for special certification in coaching. For the administrators, schools usually had from 2 to 6 coaches and only from 1 to 3 PE positions; 70% have no written policies for hiring coaches; 81% did not require a coach to have a PE major or minor; 57% preferred the coach to teach in an area other than PE; and 62% indicated coaches were hired more for coaching ability than for teaching ability.

UNIVERSITY OF CALIFORNIA, BERKELEY, CALIFORNIA

(Mary Lou Norrie)

381. AMUCHIE, Fidelis. *Male undergraduate subcultural participation in the intramural sports program at the University of California, Berkeley.* Ed.D. in Education, 1974, 220 p. (D. B. Van Dalen)

382. DAWKINS, Tanaka Hagrwara. *Some consequences of a three factor theory of reminiscence in a gross motor task.* Ph.D. in Education, 1973, 62 p. (M. L. Norrie)

383. DOBBINS, David Alan. *The attention theory of two choice discrimination learning as applied to the perceptual-motor learning of educable mental retardates.* Ph.D. in Special Education, 1974, 106 p. (G. L. Rarick)

384. KING, Rosemary Louise Kimble. *The effect of the length of standard presentation on intravariance and constant error for a kinesthetically monitored force reproduction task.* M.A. in Physical Education, 1974, 48 p. (M. L. Norrie)

385. MUSCH, Timothy Ira. *The role of gaseous nitrogen in respiration and its effects on open-circuit methods of determining oxygen consumption.* M.A. in Physical Education, 1974, 101 p. (G. A. Brooks)

386. SANDER, Erika. *Age and sex differences in performance, learning, and retention of a simple and complex coincident timing task performed by educable mentally retarded children.* Ph.D. in Education, 1974, 83 p. (D. B. Van Dalen)

387. TURMAN, James Calvin. *Effects of unidextrality and cross-dextrality on the performance of a perceptual motor skill.* M.A. in Physical Education, 1974, 102 p. (M. L. Norrie)

388. WALSH, Joseph Anthony. *The effects of degree of original learning of a gross motor task on intertask transfer of learning.* Ed.D. in Education, 1973, 77 p. (G. L. Rarick)

UNIVERSITY OF CALIFORNIA, SANTA BARBARA, CALIFORNIA (Vera Skubic)

389. BROCK, Gregory G. *Observations of cardiovascular tests administered to experienced high school runners over a one year period of training.* M.A. in Physical Education, 36 p. (E. Michael)

Exp. HS runners ($N = 9$) were given a series of physiological tests during the course of 1 yr of training, to determine the changes that occur at various points in the training program. O_2 uptake, HR, and ventilation were measured while running on a treadmill. None of the changes that occurred during the year was statistically significant.

390. EIBEN, Serah Jane. *A critical incident study of the physical fitness requirements of university policemen and a proposed physical fitness test battery for evaluation of applicants.* M.A. in Physical Education, 1973, 158 p. (C. Overby)

The problem was to determine whether or not the physical fitness tests used to hire policemen are realistic in terms of the tasks police perform on the job. Personal interview and critical incident techniques were used to obtain information about actual activities on the job: what type of duties, how often did an action occur, was strength needed, and how much wt. was lifted, etc. Based on the information collected, a test battery was designed that seemed suitable for the job and for both males and females.

391. MAGNOTTA, John Ralph. *The maintenance of physical fitness following a program of physical training.* M.A. in Physical Education, 81 p. (E. Michael)

A physical conditioning program was administered to 14 female nonathletes. *S*s trained 3 times/wk for 7 wk on a bicycle ergometer, working at 80% of max effort. Following training, *S*s were divided into 2 groups for a 7-wk postconditioning period. One group exercised 1 period/wk and the other exercised every other week. Results indicated that HRS were reduced significantly during training. However, *S*s could not maintain their fitness levels during the postconditioning period. No differences were found between the 2 groups.

392. Mc GUIRK, Eugene Gerard. *The influence of variations of the center of mass on estimation of body segment weight.* M.A. in Physical Education, 1974, 72 p. (E. Michael)

A new, direct method of measuring segmental limb weights was studied. The right leg of each of 65 college females was weighed using the direct method and the suspension methods. Leg length, volumes, circumferences, and skinfold measures were also made. The factors affecting leg density appear to influence the leg center of mass.

393. PATTERSON, Marcia Drew. *Effectiveness of perceptual-motor therapy on kindergarten children.* M.A. in Physical Education, 1974, 45 p. (V. Skubic)

The Winter Haven Form Test was administered to 24 kindergarten children. 12 children identified as having perceptual-motor problems in the group participated in a 6-wk therapy program, involving postural and bilateral type activities. At the end of the therapy session, the Winter Haven test was again given to all *S*s. Those children in the therapy program improved 36% and those not in the program showed no improvement.

UNIVERSITY OF COLORADO, BOULDER, COLORADO (Dale P. Mood)

394. FISHER, Robert. *Construction and validation of a written test for the certification of gymnastic officials.* M.S. in Physical Education, 1974, 130 p. (D. Mood)

395. MINIHAN, Donald. *Comparison of interval-continuous running for cardiovascular fitness using Air Force Academy cadets.* M.S. in Physical Education, 1974, 51 p. (F. Murphy)

396. POLANSKY, Kevin. *The effects of knowledge of mechanical principles on learning five required springboard dives.* M.S. in Physical Education, 1974, 70 p. (R. Bibler)

397. POWELL, Nancy. *The effects of participation in leisure activities on life satisfaction of retired women in retirement centers.* M.S. in Physical Education, 1974, 83 p. (F. Murphy)

398. ROGGOW, Katherine. *Status of and attitude toward athletic competition for elementary school age girls in selected programs in the state of Colorado.* M.S. in Physical Education, 1974, 106 p. (C. Edmondson)

UNIVERSITY OF DENVER, DENVER, COLORADO (G. Caffrey)

399. DAVIS, Nancilee. *Personality characteristics, motivations, and satisfactions of persisters and dropouts enrolled in a university faculty and staff physical fitness program.* M.A. in Physical Education, 1974, 78 p. (L. Gettman)

Ss were 27 males and 12 females between the ages of 23 and 49 who voluntarily enrolled in a faculty and staff physical fitness program scheduled at the noon hour 2 or 3 times/wk, depending upon scheduling factors for that term. Of the initial group, 62% persisted in the program throughout a 9-mo period. Information about the factors leading to perseverance or discontinuance was obtained from a questionnaire testing motivations for entering the program given to all *Ss* in the fall, 3 personality tests, and a questionnaire and personal interview testing satisfactions with the program given in the spring. The results indicated that the *S*'s motivations for entering the program were primarily to improve appearance and cardiovascular fitness, but the benefits they actually derived to a level of great satisfaction were in the areas of generally feeling healthier and having increased energy and reduced tension. No statistical differences were found between persisters and dropouts on any of the measures tested. The reasons for discontinuance were found to be of a personal nature and not related to satisfaction with the program.

400. DURSTINE, Larry J. *Comparative effects of interval, endurance, and combined running programs on anaerobic and aerobic capacities.* M.A. in Physical Education, 1974, 72 p. (L. Gettman)

Interval, endurance, and combined running programs were compared by dividing 21 college-aged males into 3 groups, each assigned a different type of training. The *Ss* were given 4 fitness tests of which 2 were anaerobic and 2 were aerobic. The anaerobic tests were the Margaria-Kalamen power test and a 50-yd-dash test while the aerobic tests were a standard 5-min treadmill run and Cooper's 12-min fitness test. The *Ss* were tested, trained 3 times/wk for 6 wk, and tested a 2nd time. The data were analyzed by use of ANCOVA and no significant differences were found among the 3 groups except for recovery HR from the treadmill run. Significant differences ($p < .01$) were found between the interval group and endurance group with the interval group having the lowest recovery HR in both cases. No significant difference was found between the combined group and the endurance group. The endurance and combined groups improved significantly on just the aerobic tests, whereas the interval group did not improve significantly on either the anaerobic or aerobic tests.

401. PANE, Gary R. *A comparison of motor learning retention of men and women on the pursuit rotor*. M.A. in Physical Education, 1974, 42 p. (L. Gettman)
A practice schedule on the pursuit rotor was administered to 2 groups of college aged *S*s—32 women and 43 men. The schedule consisted of 6 trials of practice on 3 consecutive days (1 trial = 30 sec of practice at 45 rpm; 30 sec of rest). From the final tracking scores group $\bar{x}$'s were computed showing no significant difference ($p > .10$) between men and women in their ability to acquire this specific motor task. After a period of 73 days, *S*s were given a posttest (3 trials on 1 day). A *t* comparison of group pretest and posttest paired scores revealed no significant increase or decrease in performance by either group, although men increased and women decreased noticeably in performance. An ANCOVA showed a significantly better performance ($p < .10$) by males on the posttest demonstrating better motor retention. Pre- to posttest *r* figures for men, women, and combined group were significant ($p < .001$). The author alluded to the fact that cultural rather than physiological reasons may be responsible for the outcome of this study.

402. SCHURZ, Helen F. *The effects of iron supplements on women in training*. M.A. in Physical Education, 1974, 66 p. (L. Gettman)
The effects of daily iron supplements (78 mg) were studied on college women in training in 3 physical fitness classes at the University of Denver, with emphasis placed on cardiovascular endurance. The double blind study was performed with 1 group having received an iron supplement daily ($N = 8$), 1 group a placebo daily ($N = 6$), and a control group ($N = 5$). The tests given to the *S*s to determine their cardiovascular endurance included a pre- and posttraining test of PWC_{150} (kgm/min and kgm/kg/min) and Cooper's 12-min run. VO_2 was predicted from the steady-state HR results of the PWC_{150} test. The *t* test was used to determine if there were any significant improvement within each group from pretraining to posttraining on the tests given. The iron group showed significant improvements on all tests given, whereas, the placebo group showed significant improvement on all tests except VO_2 (ml/kg/min). The control group showed no significant improvement on any test given. ANOVA was computed and significant differences were found on the pretraining tests of PWC_{150} (kgm/min and kgm/kg/min) and Cooper's 12-min run. ANCOVA was also computed for the 3 groups on the pre- and posttraining tests. No significant differences were found among the groups after the covariates were adjusted.

UNIVERSITY OF FLORIDA, GAINESVILLE, FLORIDA (Owen J. Holyoak)

403. ARNOLD, Thomas William. *Mechanical analysis of standing and medium crouch sprint starts*. M.A. in Physical Education and Health, 1974, 72 p. (D. A. Kaufmann)
The purpose of this study was to analyze the descriptive and mechanical variable of the medium crouch start and the standing sprint start as demonstrated by male college sprinters. Eight sprinters with a minimum of 3 yr of competitive experience served as *S*s. Two high-speed 16-mm cameras filmed the *S*s from the frontal plane (67.9 fps) and sagittal plane (220 fps) as they performed 2 crouch and 2 standing starts, as randomly assigned, over 20 yd. An electrotiming device that recorded times to the nearest .01 of a sec was used to record times for the 20-yd runs of each *S*. To provide a means of comparison, 9 descriptive and 8 quantitative variables were investigated as components of the sprint starts. The standing start enabled longer $\bar{x}$ stride lengths, while the crouch start permitted slightly faster initial average velocities. Best time comparisons indicated the conventional crouch start was suitable for some, while the standing start was more effective for others. Overall, the standing start came close to being as effective as the crouch start.

404. CHAMBERLAIN, Joyce Etta. *The effect of ferrous gluconate on oral lesions in human subjects*. M.A. in Physical Education and Health, 1974, 74 p. (D. A. Hicks)
The investigation presents an exp. study of the hemoglobin levels and manifestations of aphthous ulcers, glossitis, and cheilosis in the oral cavities of 25 subjects observed at the dental clinic of the College of Dentistry, University of Florida, Gainesville. At the initial visit of each *S*, the condition of oral lesions was assessed and a blood sample was procured by means of a finger tip puncture. The cyanmethemoglobin procedure was used to determine the hemoglobin level. After a period of 30 days, each *S* was asked to return to the clinic for a reevaluation of the oral lesions and a 2nd determination of the hemoglobin level. Thirteen *S*s were selected to take

ferrous gluconate supplements. The remaining 12 *Ss* received no treatment. All 13 *Ss* who received ferrous gluconate treatments showed increases in hemoglobin levels, and only 2 of these *Ss* showed no improvement in oral conditions. Of the 12 *Ss* who received no treatment, 6 demonstrated increases in hemoglobin levels, and 5 showed some improvement in oral conditions. These latter 5 *Ss* reported, however, that they took iron supplements independently, or that they improved their diets. Findings seem to show that there are positive indications of apparent relationships between the hemoglobin level and periodic occurrence and reduction of certain oral maladies. Further exp. study involving larger numbers of patients is recommended.

405. DOLBIER, Donna L. *The effects of lower and upper extremity training on selected cardiorespiratory measures*. M.A. in Physical Education and Health, 1973, 84 p. (C. W. Zauner)

Nineteen sedentary, middle-aged male *Ss* were randomly assigned to 1 of 3 groups: leg training, arm training, control. All *Ss* were tested 4 times at 4-wk intervals for: HR at a 5% treadmill slope and 3.5 mph, 1-min recovery HR, max HR, max VO_2, PWC, wt., systolic B/P, and diastolic B/P. The split plot ANOVA was used to test the null hypothesis between the 3 groups and across time on all 8 parameters. Statistical significance ($p < .05$) occurred across time in: HR at a 5% treadmill slope, 3.5 mph, 1-min recovery HR, max VO_2, PWC, wt., systolic B/P, and diastolic B/P.

406. FRYE, Patricia Anne. *Selected physical correlates of the professed self-concept and personality of overweight college women in a conditioning program*. M.A. in Physical Education and Health, 1974, 94 p. (R. H. Alexander)

Overweight college women ($N = 24$) participated in an 8-wk individualized program of physical conditioning and some form of personal regulation of dietary habits. During the conditioning program, statistically significant ($p = .05$) improvements were made in wt., body density, the Cooper 12-min run-walk test, waist, hip, and thigh circumferences, and a Self-Concept Tally ratio of positive to negative feelings toward the self. During the 4-wk postconditioning period, the *Ss*' wt. and body measurements again approached preconditioning levels, although only the hip circumference increased a significant amount. The Self-Concept Tally also showed a return toward the preconditioning level, but not to a significant degree. There was evidence to indicate that change in the professed self-concept, as measured by the Self-Concept Tally and a Semantic Differential instrument, was positively related to change in the physical variables, but these relationships appeared to be specific to the particular aspect of the self-concept and the physical variables involved. The report of typings on the Myers-Briggs Type Indicator showed that 1 personality type (ENTP—extroverted intuition with feeling) constituted 33% of the sample. This is twice the percentage which might be expected from figures for fresh. women (16.6%). The combined extroverted thinking and extroverted feeling types (E–J's) showed the greatest wt. loss during the conditioning period. It was concluded that a program of this type could be instrumental in producing positive change in professed self-concept as well as in physical measurements.

407. HEALEY, Michael J. *Differences in movement time for various offensive football maneuvers initiated from the four point parallel stance as opposed to the three point staggered stance*. M.A. in Physical Education and Health, 1974, 44 p. (C. W. Zauner)

Varsity offensive linemen ($N = 20$) from the University of Florida football team were used as *Ss*. Each *S* was weighed, then measured for sitting-ht. and standing-ht. The tests given for each stance were: linemen pulling left, linemen pulling right, and linemen setting-up for pass protection. Each *S* took all 4 tests for each stance. Four trials were given for each test under each stance condition, 1 warm-up and 3 testing trials. The results indicated there were no significant differences between the time achieved by the initiation of movement from the 4-point stance as opposed to the 3-point stance. However, it was shown that short-legged linemen when initiating movement from the 4-point stance to set-up for pass protection had significantly faster times than when the movement was initiated from the 3-point stance. Thus, if most offensive linemen had short legs it would be advantageous to place the line in the 4-point stance. Furthermore, it was found that body size had no significant effect on times provided by either of the 2 stances.

408. RAMSEY, Joe Pree. *Mechanical analysis of selected baton exchanges in sprint relays.* M.A. in Physical Education and Health, 1974, 41 p. (D. A. Kaufmann)
Eight *S*s were selected and divided into 4 groups. Each group executed 2 exchanges of both the jet pass and underhand methods. Each exchange was filmed and recorded by a 16-mm Beaulieu camera (64 fps) and a 16-mm Low-Cam camera (100 fps). The results of the films were analyzed quantitatively and descriptively. The quantitative results were observed as follows: max stride length previous to the exchange and during the exchange; time and displacement at contact of baton zone; and distance gained or lost between runners at exchange point. The descriptive results were observed as follows: degree of body lean during exchange; baton hand grip at initial contact of baton; underhand motion of baton during delivery. Significant differences were found in favor of the jet pass method in all of the variables listed.

409. STANTON, David Earl. *A cinematographical analysis of conventional-style and soccer-style place kicking in football.* M.A. in Physical Education and Health, 1974, 50 p. (D. A. Kaufmann)
*S*s were 2 experienced place kickers, 1 of each style, on the 1973 University of Florida varsity football team. They were filmed by 3 16-mm cameras (150 fps) from the top, side, and front while attempting field goals from 20, 35, and 50 yd. The variables analyzed were categorized as follows: body position at the same instants during different kicks, x̄ joint angles throughout the kick, and quantitative foot and ball parameters for each kick. It was concluded that: the body mechanics of both kickers changed as the distance of the kick increased; the soccer-style kicker had a faster x̄ rate of knee extension before contact than the conventional-style kicker (3560 deg/sec vs. 2200 deg/sec); and because of the apparent inconsistency in the point of contact on the ball, no direct relationship was observed between any 2 of these variables: foot velocity before contact, ball velocity after contact, angle of takeoff, linear displacement of ball, and speed of ball rotation around its bilateral axis; however, they were interrelated because of cause-and-effect among them.

410. WILSON, Jill T. *Female role images as perceived by female college students.* M.A. in Physical Education and Health, 1974, 50 p. (O. J. Holyoak)
Female role images, i.e., the feminine, the physically active, and the ideal female, were studied. The semantic differential format devised by Osgood to measure attitudes or feelings was used. *S*s were selected using representative sampling techniques from the population of fresh. and sr. females. Using a 2-way ANOVA, it was found that economic level had a significant ($p < .001$) effect on the way in which a *S* responded related to her perception of the potency factor for a swimmer and for a physically active female. Geographic location was found to influence the *S*'s perception of the activity variable for the feminine woman. A 1-way, ANOVA showed significant differences ($p < .01$) between the fresh. ($N = 54$) and the sr. ($N = 55$) in their perception of the female track athlete as it related to the evaluative factor. No significant differences ($p > .01$) were found in the other comparisons.

UNIVERSITY OF ILLINOIS, URBANA, ILLINOIS (A. W. Hubbard)

411. ADESSO, Nicholas A. *An evaluation of the Champaign-Urbana safety town program.* M.S. in Safety Education, 1974, 65 p. (A. E. Florio)
Interviews with preschool children in and not in the program indicated significantly ($p < .01$) greater knowledge about safety and safe practices among participants. No sex difference was evident. Item analysis showed that all but 3 of the 50 items discriminated adequately.

412. BANKS, Marshall Douglas. *Interactive effects of conceptual development of parents and teachers on enhancing creativity in children and conditions of home play.* Ph.D. in Recreation, 1973, 98 p. (A. V. Sapora)
*S*s were drawn from preschool children ($N = 80$) with ages 4–5 yr in a nursery school at the Children's Research Center and were tested on 13 creativity variables. Their fathers, mothers, and teachers were tested for conceptual development as a basis for dividing each group into high and low subgroups. Children's creativity showed no single-factor effect for any high-low parent or teacher comparison. Significant father × mother interactions indicated that similar levels of parental conceptual level enhanced creativity in children. Similar significant effects occurred in the home play variables for the father × mother and mother × teacher interactions.

413. BARNETT, Lynn A. *An information processing model of children's play.* M.S. in Recreation, 1974, 122 p. (M. G. Wade)
Ss averaging 4.8 yr of age ($N = 25$) had 2 individual exposures of 15 min each to puzzles having 3 geometric parts or 6 amorphous parts fitting together. About half started with each puzzle and about half of these had the same puzzle both times or transferred to the other. Activity was videotaped and analyzed in 9 categories. *Ss* lost interest in the simpler puzzle after the first few min, but finding little of interest in the room returned to playing with the parts imaginatively. The complex puzzle occupied them significantly longer ($p < .01$). The time manipulating a new or familiar puzzle did not differ significantly so novelty was not apparently a factor. Children seek arousal and more complex things sustain their interest longer.

414. CASKEY, Alan Rice. *A supply-demand regression analysis econometric model for outdoor recreation.* Ph.D. in Recreation, 1974, 121 p. (A. V. Sapora)
An econometric model developed by the Bureau of Outdoor Recreation at Rutgers University was modified by adding recreation expenditure and attitudes toward opportunities for recreation. The revised model was tested with a sample from the state of Illinois. The revisions improved comparisons of existing supply and demand relationships and the prediction of future supply and demand.

415. DUDKA, Leonard Thomas, *The effect of 12 weeks of endurance running at a selected intensity on measures of lean body mass.* Ph.D. in Physical Education, 1974, 92 p. (B. J. Massey)
Ss originally were 24 adult male, undergraduate volunteers in 3 equal groups. One group continued normal activity. The other 2 groups expended an estimated 500 kcal at each training session by running 4 times/wk for 12 wk on an indoor track at either 80% or 60% of their individual peak vo_2. One *S* was lost from the 80% group and 4 from the 60% so subsequent comparisons involved mainly the 80% and control groups. Lean body mass was estimated from hydrostatic wt., 2 skinfolds, and whole body ^{40}K counts. Dual measures both before and after training showed test reliabilities ranging from .91 to .99. Analyses of lean body mass, percent fat, and wt. covariances yielded entirely fractional *Fs* so training at 80% maximal was not significantly better than normal activity for increasing lean body mass. The increase in running endurance of the exercised group on the treadmill at 200 m/min and 5% grade was 4 times that of the control group (100/25 sec) so running improved running endurance.

416. ELEYAE, Awoture. *A comparative assessment of the central organizations for amateur sports in the U.S.A. and Nigeria.* Ph.D. in Physical Education, 1974, 353 p. (D. O. Matthews)
The history, structure, and function of 3 controling organizations in each country were analyzed from official records, published sources, questionnaires, and interviews to determine the perennial sources of conflict especially among groups promoting intercollegiate sports and those franchised to select national teams and conduct international contests. Considering athletes, facilities, finances, and professionally trained personnel as resources, conflicts concerning their use arose when jurisdiction shifted from the primarily-collegiate to the voluntary or state-appointed franchised group, and especially when the resource group lacked majority representation on governing boards of the franchised group. This disparity between producers and users of athletic prowess led to a "Resource Utilization Conflict Syndrome" generating jurisdictional and operational conflicts. Recommendations for minimizing or obviating such conflicts and maximizing the benefits for the ultimate producers (athletes) were provided.

417. FLANAGAN, Thomas Edward. *A comparative assessment of specified environmental characteristics of the College of Physical Education, University of Illinois, Urbana-Champaign.* Ph.D. in Physical Education, 1974, 205 p. (D. O. Matthews)
The College and University Environment Scale, 2nd edition (CUES II), has 20 each items measuring practicality, community, awareness, propriety, and scholarship; 22 of these also measure campus morale and the quality of teaching and faculty-student relations. CUES II was administered to 580 students with 359 (62%) returns and 81 faculty with 63 (78%) returns after followup. Items showing two-thirds or more agreement either way within groups were considered "significant perceptions" of campus climate. These ratings were essentially similar for faculty and students within and across the 4 departments involved. All qualities, except awareness, were

rated below the national norms. Students rated the quality of instruction below but faculty rated it above the national norms. The present student ratings were consistently higher than those for local, all-university surveys in 1967 and 1969. Either the campus climate had improved or the College of Physical Education students viewed it more favorably than the previous local university samples had.

418. GILL, Diane L. *The informational and motivational influence of social reinforcement on motor performance.* M.S. in Physical Education, 1974, 98 p. (R. Martens)

Girls in grades 7 and 8 ($N = 80$) knelt to roll a hard rubber ball 6 ft on the floor and up a 6-ft board inclined 15° and obscured by a screen. Scores ranged from −10 to 10 in 4-in. units with 0 midway up the board. *S*s were assigned randomly to neither, either, or both KR and social reinforcement (SR—appropriate informative statements) for each of 25 trials. *S*s also estimated their scores after each trial. The data were treated as absolute, algebraic, and variable errors for blocks of 5 trials. Mean absolute and algebraic errors (7.47 and 7.05) were essentially identical because *S*s consistently overshot. Mean estimation errors (5.51 and −4.89) were also similar because *S*s consistently underestimated and absolute error reversed the sign. The errors (except variable) intercorrelated with $p < .01$. Multivariate analysis showed significant effects for KR, SR, and blocks (learning). The KR × *E* (experimenter) effect was significant because half the *S*s working with one *E* became more accurate. The KR × SR and all other interactions were nonsignificant because SR was less specific KR. *S*s had to show the task was "well-learned" (within ±2 on 3 consecutive trials). They then continued under the previous conditions after a 1-min rest for 40 additional trials in 8 blocks of 5 each. Multivariate analysis showed significant KR and blocks effects, as before, but no SR, *E*, or interaction effect was significant. Additional practice with KR improved performance.

419. GRENINGER, Leonard Oliver. *Kinesiotherapy methods for disabled glenohumeral joints.* Ph.D. in Physical Education, 1974, 123 p. (R. H. Pohndorf)

*S*s ranging in age from 21 to 62 yr ($N = 46$) were paired initially into 3 groups on age, sex, range of motion, and type of disability. They were pretested twice and posttested with and without the shoulder girdle stabilized for range of motion, static strength at 10° abduction, and muscular work at 18°, 30°, and 60°/sec with the Cybex II and attached goniometer. One group had 24 sessions of kinesiotherapy in 8 wk with the shoulder stabilized, the 2nd without stabilization, and the 3rd had no kinesiotherapy. Test-retest reliabilities from pretest scores were high. Comparisons with ANCOVA and Tukey's test showed that both exercised groups improved significantly more ($p < .01$) than the unexercised in muscular work but not in range of motion or strength. Stabilizing the shoulder girdle produced greater gains but only that for muscular work at 18°/sec approached significance ($p < .10$). *S*s with severely restricted glenohumeral joints gained over 50% in muscular work and about 100% in range of motion with the shoulder girdle stabilized.

420. HOWDYSHELL, Judy Ann. *Attitudes of junior and senior high school girls in urban and rural communities toward physical education.* M.S. in Physical Education, 1974, 55 p. (J. E. Razor)

The revision by Kneer of the Wear attitude inventory was administered to 45 randomly selected girls in each grade from 6 through 12 in 5 small, rural schools in Champaign County and in the large, urban schools in Champaign and Urbana, Illinois. The analysis of 4 subscore and total score variances showed no significant difference between JHS and SHS attitudes toward PE. But the attitudes in small and rural schools at both levels were significantly higher ($p < .01$) than in large and urban schools.

421. MAXEINER, Barbara A. *Knowledge, behavior, and attitudes of sixth grade students toward family life education.* M.S. in Health Education, 1974, 69 p. (D. B. Stone and T. W. O'Rourke)

A pretest with 49 knowledge, 11 behavior, 15 attitude, and 4 demographic items was administered during 1968–69 to 239 male and 271 female students in 10 of the 27 Chicago school districts to establish norms before instruction. Only districts with $\bar{x}$ reading scores consistently above or below the 50th percentile for 3 consecutive yr were used in the sample. Reading scores were

used as a correlate for socioeconomic status. Female and upper socioeconomic students scored significantly higher ($p < .05$) on the knowledge and attitude sections. Means for schools that had had the unit the preceding year were also slightly and significantly higher ($p < .01$) than those that would have it for the 1st time in the same district.

422. NAMEKATA, Tsukasa. *Synthetic state estimates of work disability*. Ph.D. in Health Education, 1974, 224 p. (T. W. O'Rourke and P. Levy)

The National Center for Health Statistics has estimated for 17 yr the partial and total work disability of over 6 mo in the U.S. and 4 regions by projecting proportions from samples involving 3 age groups, 2 races, 2 sexes, and 5 home locations to the national and regional populations. The accuracy of these projections was tested for separate states with data from the 1970 census. Medians provided more descriptive values for subgroups than $\bar{x}$'s. The state estimates for partial work disability were reasonably accurate. Estimates of total work disability were reasonably accurate only for blacks, fair for females, and fairly poor to poor for states, age groups, whites, and males.

423. NDULUE, John Chika. *Selected aspects of physical education in advanced countries around the world with implications for the developing areas, especially Africa*. M.S. in Physical Education, 1974, 109 p. (R. G. Wright)

ELE and HS education and especially PE programs in Great Britain, Japan, and the U.S. were compared with those in Ethiopia, Nigeria, and Zambia using published data and especially ICHPER surveys. The "advanced" or affluent countries had better facilities and more varied programs. They also put more emphasis on the developmental needs of ELE children, physical fitness, self or personal defense, camping, orienteering, and other challenging activities in the natural environment. The developing countries (except Ethiopia) were markedly deficient in aquatics. A shift toward the aquatic, individually developmental, and naturally challenging activities seemed desirable and feasible. The economic status of PE teachers in the affluent and developing countries was approximately equal. Professional competence in games and sports was respected in developing countries but PE teachers had much less influence in general educational policy, partly from a lack of professional organizations. A general lack of libraries and research facilities impaired their scholarly development, except in Nigeria.

424. OLSON, Martin John. *A descriptive analysis of parent, principal, and teacher evaluations of a family life and sex education program in the Chicago public elementary schools*. M.S. in Health Education, 1974, 148 p. (J. A. Conley)

Data were collected with a fixed alternative questionnaire over a 3-yr period from 27 Chicago school districts. Teachers responded after the workshops and classroom instruction. Parents and students responded before and after classroom instruction. Principals responded at the end of the school year. The majority indicated that 5th-grade students could and did benefit from the program and that the same material was appropriate for both sexes. Differences in the degree of favorableness between responding groups and demographic variables were occasionally significant.

425. PECHINSKY, Joseph Michael. *The effects of a systematic physical conditioning program with and without heat acclimatization treatments on performance in a hot environment*. Ph.D. in Physical Education, 1974, 150 p. (B. H. Massey)

Normal college male volunteers were assigned randomly to 3 groups of 10 each. The control group continued normal activity. Two groups exercised for 90 min 3 times/wk for 10 wk and rode a bicycle ergometer on alternate days for 60 min at 50 rpm with 0 resistance. Heat acclimatization involved riding at 37° C, but all other exercise was at 18° C. All *S*s were pre- and posttested on the bicycle ergometer at 37° C and 50 rpm with workloads at 450 kpm/min for 10 min and increments of 300 kpm/min every 5 min to a PR of 180. PR and rectal and surface temp. were monitored. Ride time and wt. loss were measured. ANCOVAS and Duncan's Multiple Range Test with adjusted $\bar{x}$s showed 21 of 26 significantly greater gains ($p < .05$) in favor of systematic conditioning over normal exercise. Heat acclimatization proved significantly better than exercise alone for riding time, 5 of 7 PR measures, and 1 of 8 rectal temps. Strenuous conditioning aided adaptation to heat stress and additional heat acclimatization improved adaptation.

426. SECAREA, Rebecca V. *An evaluation instrument for assessing health knowledge of seventh grade students participating in a special school health education project.* M.S. in Health Education, 1974, 70 p. (L. K. Olsen)

A 47-item multiple choice test for use with the Berkeley Project was prepared from the results of a completion test used to determine appropriate distractors. Item difficulty, validity, and test reliability were not determined.

427. TRIMBLE, Richard Thomas. *The effect of the student teaching experience on authoritarianism in student and cooperating teachers in physical education and other teaching specialties.* Ph.D. in Physical Education, 1974, 162 p. (J. E. Razor)

*S*s were 188 pairs of students and cooperating teachers. Complete data were obtained from 123 pairs and usable data from 177 students and 133 cooperating teachers. Demographic data were obtained before student teaching. A 30-item Personal Opinion Inventory by Lee and Warr measured authoritarianism before and after student teaching. Students rated their rapport with cooperating teachers after teaching. Mean authoritarianism was very similar for students in and over the 6 specialties involved. The $\bar{x}$ order from greatest down was PE, ELE, mathematics, social studies, foreign language, and English with differences of 3 or more positions significant ($p < .05$). The cooperating subgroups were more authoritarian. Authoritarianism tended to increase after student teaching, but the increases were only significantly greater for teachers with 11 or more years experience. Marked authoritarian dissonance between pairmates did not affect rapport adversely since students moved toward the authoritarian level of their cooperating teachers.

428. WALKER, Shirley Ann Ackerman. *Knowledge, behavior, and attitudes of fifth grade students toward family life education.* M.S. in Health Education, 1974, 61 p. (D. B. Stone and T. W. O'Rourke)

The 70-item test plus demographic items was administered prior to instruction to 356 male and 390 female students at 3 schools in each of 10 Chicago school districts. Fifth grades in 1 school had the material the preceding year. Those in another school would have it during the current year and those in the 3rd would not. Subsection and total $\bar{x}$s tended to be slightly higher where material was introduced the preceding year or would be in the current year, but *S*s generally got half or less of the items correct. Means for upper socioeconomic level students were higher in 16 of 18 comparisons and significantly higher in 11 ($p < .05$). Upper socioeconomic males and females showed this same pattern, but females had fewer significant differences (4 of 18). The $\bar{x}$s for males were higher in 10 comparisons, but females scored significantly higher in 2.

429. WHITE, Virginia Longley. *Influence of win-loss ratio on performance, satisfaction, and preference for opponents.* M.S. in Physical Education, 1974, 98 p. (R. Martens)

*S*s were 20 college women. The task involved rolling a ball clockwise around a square maze with inset corners and traps by adjusting its front-back and lateral tilt. *S*s were told they would compete with 5 different opponents (*O*s) during the next 5 days and chose *O*s from a fictitious list of 30 with ability rated from 1 to 10. Fifteen *S*s chose *O*s rated in order 1, 3, 5, 7, and 10. The rest chose *O*s nearer average. Daily "contests" consisted of 20 matches. *S*s saw their times after each trial but *O*s mazes were obscured. The experimenter reported fictitious times for *O* and recorded both times on a blackboard so *S* apparently "won" 10%, 30%, 50%, 70%, or 90% of the matches. The percent won was counterbalanced over days. *S*s rated their preferences for *O* after the contests. The *O* for 50% won got 15 1st, 4 2nd, and 1 3rd choice. The last 2 choices were equally divided between *O*s giving percent wins both above and below 50. *S*s improved significantly ($p < .01$) both within and across sessions. The best (lowest) $\bar{x}$ (27.53 sec) was for 50% won. This was also significantly better than for 10% and 70% won. Mean satisfaction with both the task and *O*s was greatest for 50% won. Task satisfaction was significantly higher for 70% and 90% won than for 10% and 30%, but satisfaction with *O*s was exactly opposite. Losing disproportionately was dissatisfying but *S*s were not dissatisfied with *O*s that beat them.

INDIANA UNIVERSITY, BLOOMINGTON, INDIANA (J. Cooper)

430. BEHNKE, Robert Samuel. *A program appraisal checklist for the health and safety aspects of secondary school interscholastic athletics.* H.S.D., 1974, 145 p. (D. Ludwig)

A review of literature revealed 453 items concerned with the health and safety of athletic participants. Refinement and classification of the items produced a preliminary instrument

consisting of 319 items under 24 areas with 4 major divisions: organization and administration, personnel, facilities, and equipment and supplies. A jury of 50 experts representing secondary school athletic directors, secondary school athletic coaches, physicians working in the area of athletic medicine, secondary school principals, and athletic trainers rated each item on a 5-point scale as to its value as a policy, practice, or procedure pertaining to the health and safety aspects of secondary school interscholastic athletic programs. Comments and suggestions made by the jurors in addition to their ratings provided the source for revision of the preliminary instrument into the Program Appraisal Checklist for the health and safety aspects of secondary school interscholastic athletics.

431. CARTWRIGHT, Norma Sue. *A comparative analysis of instructional systems suggested in selected professional health and safety education textbooks and instructional systems textbooks*. H.S.D., 1974, 154 p. (J. K. Rash)

Selected professional health and safety education textbooks were gleaned to locate instructional techniques suggested for presenting health and safety education content. For each selected textbook, emphasis was determined by use of the percentage technique. Rank order placed the books in order as to the amount and variety of suggested instructional procedures. Emphasis was also determined based on all data collected from the health and safety textbooks. Results were discussed. Instructional systems ($N = 208$) were suggested by the 2 sets of books. Implications and recommendations for improving health and safety education textbooks regarding instructional systems were made.

432. CLARK, Marilyn Louise. *An assessment of characteristics of successful women intercollegiate athletic coaches*. P.E.D., 1974, 153 p. (A. Aldrich)

An attempt was made to assess athletes' perceptions of selected characteristics of successful women intercollegiate athletic coaches and to provide profile comparisons of women coaches in 4 sports. A semantic differential was administered to 419 participants in the 1972–73 MAIAW Tournaments in basketball, volleyball, gymnastics, and swimming to assess athletes' perceptions of 12 coaching characteristics. Of the 419, the 196 *S*s included in this study represented a 50% random sampling of the semantic differentials used to analyze the data. Profiles for comparisons of the 4 groups of coaches, analysis of factor scores to determine if significant differences existed among the 4 groups of coaches, and an estimate of the reliability of the semantic differential were derived from these statistical procedures.

433. DAVIS, Myron William. *Quality of data collected by the segmental analysis technique*. P.E.D., 1974, 163 p. (C. Strong)

An attempt was made to determine the statistical relationships existing when the following selected factors were manipulated in determining the center of gravity of man as recorded on film: selected segmental data, body size, body position, and projected image size. An attempt was made to answer the following questions: Is the segmental method of determining man's center of gravity from filmed data reliable? Is such a method objective? How valid is this method when compared with the center of gravity board method? A center of gravity board system was designed and constructed as a criterion instrument, a photographic system was used to record data, and a plotting system was used for quantification of the filmed data. Two *s*s assumed 3 positions on the center of gravity board system. Once a position was assumed, the system was balanced and scale readings were recorded; a photograph was taken simultaneously. The negatives were projected on photographic paper to image to life-size ratios of 1:6 and 1:12. Plotters identified and marked the segmental endpoints of 26 photographs. The plottings were converted to an X–Y coordinate system for quantification of the segmental locations. The results were then analyzed with respect to the criterion center of gravity estimates.

434. FEIGL, Frank Lynn. *The relationship of personality to the sport of gymnastics*. P.E.D., 1974, 186 p. (G. Cousins)

Employing the Cattell 16 PF Test, personality data were collected from male gymnasts ($N = 175$) of 19 college gymnastic teams. Data were analyzed by means of a *t* test to determine if gymnasts differed in personality factors from the normative population. Multiple discrimination function analysis, stepwise multiple discriminant analysis, and canonical *r*s were used to determine if personality factors differentiated gymnasts competing in different events, performance levels of gymnasts, and performance levels of gymnastic teams. Cattell's similarity coefficient was used to determine if gymnasts on a successful team had similar personalities.

435. FLETCHER, Sarah Ann. *A comparison of affective changes between economically disadvantaged and nondisadvantaged sixth graders at a resident outdoor education program.* Re.D. 1974, 92 p. (T. Deppe)
The researcher analyzed the differences in self-reliance, ability to cooperate in a group, and the transfer of positive values back to the classroom between economically disadvantaged and nondisadvantaged 6th grade students attending the 5-day resident outdoor education program of the Toledo Public Schools. A random sample of 100 6th grade students was used in a $2 \times 2 \times 2$ research design comparing economically disadvantaged with nondisadvantaged, males with females, and pretests administered 3 wk before the outdoor education experience with posttests given 2 wk after the resident program. Three pencil and paper test instruments were used: Nowicki-Strickland Locus of Control as a measure of the internal-external psychological dimension, the All About Myself Scale for Student's Self-Evaluation of abilities in 9 areas, and selected items from the pre- and postcamp questionnaire.

436. HAMER, Doris Ray. *The "mini-match" as a measurement of the ability of beginning tennis players.* P.E.D., 1974, 65 p. (A. Aldrich)
This study was to compare the use of the U.S. Lawn Tennis Assoc. 7 out of 12-point tiebreak in a roundrobin tournament to subjective ranking by judges as a determinator of playing ability of beginning women tennis players. *Ss* ($N = 64$) were women students from 4 beginning tennis activity classes at Southeast Missouri State University. 16 *Ss* were selected from each of the 4 classes. The *Ss* in each class played a roundrobin tournament using the U.S. Lawn Tennis Assoc. 7 out of 12-point tiebreak as a mini-match. Two judges rated each *S* twice. Each *S* repeated her 1st round match at the beginning of the 2nd day of tournament play for purposes of reliability. Validity coefficients of .72, .78, .80, and .81 were obtained in this study. The mini-match tournament play was found to be reliable in 3 of the 4 classes tested. The level of agreement between the judges was found statistically significant.

437. HENRY, George Martin. *The shooting accuracy of third grade students who practiced shooting at goals less than 10 feet high.* P.E.D., 1974, 93 p. (T. Baumgartner)
The problem was to compare shooting accuracy of 3rd grade students who practiced at a graduated basket height of 8 to 10 ft with shooting accuracy of those who practiced at a regulation basket 10-ft high. One exp. group began practice at baskets 8-ft high. These baskets were gradually raised in 6-in. increments to 10 ft over a 6-wk period. The 2nd group practiced at 10-ft baskets during the entire practice period. Tests were conducted to see if there was a significant difference between the results of the initial and the final tests which were conducted at the 10-ft height, and if there was a significant difference in shooting accuracy between the groups on the final test. All groups improved. The boys practicing at the regulation basket revealed greater shooting accuracy than those who practiced at the graduated height basket. There was no difference in shooting accuracy of the girls who practiced at the regulation basket and those who practiced at the graduated basket.

438. JACOBSON, Phyllis Audrey. *Knowledge and practice of women physical education teachers in Indiana regarding negligence.* P.E.D., 1974, 134 p. (A. Aldrich)
Based on the review of literature and pertinent court litigations, a 2-part survey instrument was developed for assessing knowledges and practices of *Ss* regarding negligence. A jury of experts aided in determining the validity of the instrument. Frequencies and percentages were computed for each knowledge item and each practice item to determine the proportion of correct answers in knowledge and the distribution of responses on a Likert-type scale in practice items. Point-biserial rs between each knowledge and practice item were computed to determine whether significant relationships existed between a *S*'s knowledge and her practices.

439. LIRAG, Priscilla Limcaco. *Effectiveness of the graduate professional preparation program at the University of the Philippines in meeting competency needs in health education.* H.S.D., 1974, 124 p. (D. Ludwig)
After the list of desirable competencies had been compiled, a pilot study was conducted and the opinions of the jury of experts were sought to refine the instrument. The data were collected from students who met the delimitations of the study. Responses were tabulated, the median for each competency statement was determined, and the statements in each major area of competency were ranked from highest to lowest based on the total percent of favorable responses.

440. LOVELAND, Norma Jean. *Principles and desirable practices for evaluation of performance of selected recreation personnel.* Dr. Rec., 1974, 195 p. (T. R. Deppe)
A jury of recreation and personnel professionals selected desirable principles and practices for performance evaluation of recreation personnel which were used in the survey instrument sent to a random sample of recreation executives for opinion and use response. Median responses, χ^2, and r were used to analyze data for 5 variables and total response. Most important and most used practices included: "clear meaningful statements of criteria used" and "focused on results-on-the-job in keeping with the department philosophy." Four practices were significant in χ^2 tests of opinion for 5 variables, while 5 practices had significant χ^2 values for use for 2 of 5 variables. A significant positive relationship as indicated by r was shown between opinion and use of the practices for each subgroup of 5 variables and for total response. Desirable practices selected by the jury and approved by the sample of municipal recreation executives constitute guidelines for the performance evaluation of municipal recreation personnel.

441. McCHESNEY, James Coleman. *Professional development and involvement of park and recreation students.* Re.D., 1974, 182 p. (T. Deppe)
The problem was to determine attitudes of recreation and park students and educators in the U.S. toward professional development and involvement of students majoring in recreation and park administration. An extensive list of statements dealing with student involvement and relationships was developed by the researcher and refined by a jury of experts. An Attitude Survey Instrument was prepared by grouping the statements into related areas. The student sample included 500 upper division and graduate students. The educator data were collected from 100 randomly selected recreation educators. The responses were tabulated and the data relating to differences in attitude toward statements concerning student involvement and relationship with organization were analyzed. Implications for student professional development were drawn from the analyses.

442. NAYLOR, Richard Wayne. *Three methods of practice relative to developing free throw accuracy in basketball.* P.E.D., 1974, 90 p. (C. Strong)
The problem in this study was to determine the effects of the use of 3 methods of practice in developing free throw accuracy at the 6th, 7th, and 8th grade levels. The practice methods consisted of shooting at a basket of regulation size, shooting at a basket smaller than regulation size, and using the lecture-discussion method relative to the presentation of correct techniques of free throw shooting. Each week for 6 wk 48 boys in the 6th, 7th, and 8th grades enrolled in the Hanover College Basketball Camp participated in the exp. *S*s were randomly assigned weekly to each of 4 treatment groups. The initial and final tests were identical in that each participant took 5 warmup shots and then 20 shots at the regulation basket. Two methods of scoring were used in recording the results. Statistical techniques used to analyze the results were intraclass r for reliability and ANCOVA for significance.

443. PIGG, Robert Morgan, Jr. *School health program guidelines.* H.S.D., 1974, 306 p. (D. Ludwig)
The purpose of the study was to establish a data bank of valid school health program guidelines for use as a resource by individual researchers, school administrators, local and state departments of education, and professional preparation classes in HE. School health program evaluation instruments ($N = 61$) were used as sources from which 3,609 items to be rated were obtained. Two 16-member juries of experts were selected to rate the items. Jury A was composed of individuals employed at the college level or in the health professions; Jury B, individuals affiliated with the public schools. Items were rated on a 0–1–2–3–4 scale, and items receiving a composite rating of 2.0 or greater from both juries were accepted as school health program guidelines. The reliability of the jury ratings was estimated through intraclass r employing ANOVA procedures in a series of 39 tests.

444. SCHEIBNER, Helen Lucille. *A history of the evolution of health education as a specialized area of professional education in Indiana colleges and universities 1816–1973.* H.S.D., 1974, 133 p. (D. Ludwig)
Records and events for the identification of HE within the broad scope of general education, PE, and related areas were researched to document the origin and growth of HE with emphasis on teacher preparation in Indiana colleges and universities. After investigating historical studies and

analysis of methodology, a series of assumptions were made for recording events, and data were collected from 103 primary sources. Documents were examined for authenticity, validity, and credibility. The source and age of the documents were used to make judgments. Documents were analyzed, evaluated, and discussed for political, religious, economic, and professional influences.

445. SCHROER, Donald Paul. *Utilizing a 5 of 9-point tiebreak as a determination of playing ability for college male tennis players.* P.E.D., 1974, 101 p. (C. Strong)
The problem was to compare student rankings achieved through the use of a round robin tennis tournament using the U.S. Lawn Tennis Assoc. approved 5 out of 9-point tiebreak with rankings achieved by subjective instructor evaluation, results of a 7 out of 12-point tiebreak round robin tournament, and the Kemp-Vincent Rally Test. Fresh. and soph. male college students participated in either a round robin tournament using the 5 out of 9-point tiebreak, the U.S. Lawn Tennis Assoc. approved 7 out of 12-point tiebreak, or the Kemp-Vincent Rally Test. Results of the 5 out of 9-point tiebreak round robin tournament, the 7 out of 12-point tiebreak round robin tournament, and the Kemp-Vincent Rally Test determined individual player rankings in each class. Three judges rated each *S* and these ratings were averaged to rank each *S* in his class. The Kendall's Tau *r* Technique was used to compare the difference in rank achieved in the tournament, the rally test, and the subjective rating.

446. SIMON, Lynn Ann. *The effects of cryokinesthesia upon motor performance.* P.E.D., 1974, 86 p. (E. Davies)
An attempt was made to study the effect of partially blocking elbow and knee efferent receptors from cortical control by localized hypothermia during the performance of simple motor skills. Six women graduate students were tested in dart throwing and soccer kicking under normal conditions and under cryokinesthetic conditions. Each performed 10 throwing and 10 kicking trials. Ice application on the elbow and knee joints produced a drop in skin temperature of between 18° and 27° C. Accuracy decreased after ice application. During the performances, range of motion decreased and time of performance increased and linear velocities were slower. There appeared to be no *r* between the degree of joint cooling and the decrement in performance.

447. SIMPSON, Charles L. *A study of personality traits and performance in women's gymnastics.* P.E.D., 1974, 114 p. (J. Endwright)
Employing the Cattell 16 PF test, personality data were collected from women gymnasts ($N = 98$) participating in the 1973 Region V Collegiate DGWS Championships. The χ^2 test was used to determine if women gymnasts were differentiated by level of success, performance, experience, and from the normative population. Eleven facets were statistically significant in differentiating from the normative population; 7 for the intermediate gymnasts and 6 for the advanced gymnasts when compared with the normative population. Significant differences were found among gymnasts at different performance levels but these differences were not strong enough or consistent enough to differentiate among levels. The results were nonsignificant in relating personality to success in gymnastics and to years of experience in gymnastics.

448. VAN SLOOTEN, Philip Harold. *Performance of selected motor-coordination tasks by young boys and girls in three socio-economic levels.* P.E.D., 1974, 145 p. (C. Strong)
*S*s were children ($N = 960$) grades 1–4 in 10 schools in Chicago, Ill., ages 6–9 yr. The schools were chosen because they contained children from 2 racial groups and 3 socioeconomic levels. The socioeconomic classifications were based upon family dwelling and income. Six selected motor-coordination tasks were administered to each *S*. A 4-factor, fixed model ANOVA was used to test for significant differences in motor performance.

449. WATTS, Parris Rene. *Comparison of knowledge gain and attitude change among three methods of teaching sex education in university personal health classes.* H.S.D., 1974, 189 p. (D. Ludwig)
Three treatment groups were used to compare the effectiveness of 3 teaching methods—lecture, independent study along with group discussion, and audio-visual in relationship to a sex education instructional unit in university personal health classes. A pretest, treatment application, and posttest format was employed. An adapted version of the Sex Knowledge and Attitude Questionnaire was the instrument in each testing session. The 2-way ANOVA was used to compare knowledge and attitude changes between pretest and posttest knowledge and attitude results among the 3 groups.

450. ZEBAS, Carole Jean. *Reward and visual feedback relative to the performance and mechanical efficiency of high school girls in the standing broad jump.* P.E.D., 1974, 114 p. (J. M. Cooper)

HS girls ($N = 30$) ranked above the 80th percentile in the standing broad jump item of the AAHPER Youth Fitness Test were filmed on 2 separate occasions. The 2nd filming involved the application of 1 of the exp. conditions; the 1st did not. One group of 10 girls was treated with videotape feedback exp. factor, and the 2nd group of 10 girls with $1 monetary reward, the 3rd group of 10 girls served as a control group. A computer-aided cinematographical analysis was conducted to reduce and synthesize the data. *T* tests to determine the trial to trial differences within each group and ANOVA to determine the trial to trial differences among groups were employed.

UNIVERSITY OF IOWA, IOWA CITY, IOWA (John F. McCabe)

451. KENT, James W. *Preparation for athletics coaching: Status and certification comparisons for coaches in Iowa.* Ph.D. in Physical Education, 1974, 141 p. (D. K. Leslie)

Questionnaires were returned from 625 (75.3%) of the Iowa coaches in 103 SHS's selected from 7 enrollment categories. Data were collected on sports coached, degree-granting institution, academic background, coaching experience, and attitudes toward attending workshops to satisfy guidelines for coaching endorsement by the State of Iowa Department of Public Instruction. The results indicated that 91.4% of the coaches did not satisfy the coaching endorsement guidelines. As additional courses in PE were completed by the coaches, additional guideline requirements were satisfied. In the case of football coaches, as the school size increased, the number of courses completed in PE increased. With all the coaches, the fewer the courses completed in PE programs, the more willing were the coaches to take workshops to complete guideline requirements. Finally, coaches in large schools completed more courses, held higher degrees, and had more experience than did coaches in small schools.

452. TWIETMEYER, T. Alan. *A comparison of two stretching techniques for increasing and retaining flexibility.* M.A. in Physical Education, 1974, 100 p. (D. R. Casady)

*S*s were 61 males assigned to static ($N = 20$), ballistic ($N = 21$), and control ($N = 20$) groups. The static and ballistic stretching groups participated in a 7-wk training period consisting of 5 basic hatha yoga exercises. The control group participated in no flexibility training during the course of the study. A Leighton flexometer and gravity goniometer were used to measure neck flexion-extension, hip flexion-extension, and combined trunk-hip flexion-extension of each *S* before and after the training period and after a 4-wk retention period. An ANOVA revealed no significant ($p > .05$) difference among the groups before training. A *t* test revealed significant ($p < .05$) gains in neck flexibility by both the static and ballistic groups, significant ($p < .05$) retention of neck flexibility by the static group, and significant ($p < .05$) gains and retention in hip flexibility by both the static and ballistic groups. An ANOVA comparing changes in flexibility among the groups between 2 testing sessions revealed significant ($p < .05$) differences between the static and ballistic groups and the control group in neck flexibility gains, and a significant ($p < .05$) difference between the ballistic group and the control group in hip flexibility gains. No significant differences ($p > .05$) were found between the static and ballistic groups.

UNIVERSITY OF KANSAS, LAWRENCE, KANSAS (Jean L. Pyfer)

453. BURKHEAD, Carlene M. *The study of visual attention and alpha as monitored by a biofeedback unit.* Ed.D., 1974, p. 173. (J. L. Pyfer)

454. CLEAVINGER, J. D. *The incidence of injuries to football players in Kansas junior high schools.* M.S. in Education, 1974, p. 63. (W. H. Osness)

455. DOREMUS, Marilyn I. *An investigation into the effects of two types of physical education programs on the body image of visually handicapped pre-adolescents.* M.S. in Education, 1974, p. 84. (J. L. Pyfer)

456. EVANS, Dale. *A study of off-season football conditioning programs at sixty-four selected NCAA universities.* M.S. in Education, 1974, p. 79. (W. H. Osness)

457. FLICKNER, Robert E. *A study of the characteristics of play in intercollegiate basketball with the 30-second time limit rule in effect.* M.S. in Education, 1974, p. 85. (H. A. Shenk)

458. HORNER, Rhonda. *The effect of interscholastic athletics in junior high school on girls' attitudes toward athletics.* M.S. in Education, 1974, p. 74. (W. H. Osness)

459. McPHERSON, Belinda Brown. *A validity study of the Kansas test of perceptual motor dysfunction with a kindergarten population.* M.S. in Education, 1973, p. 130. (J. L. Pyfer)

460. MONTGOMERY, Wayne J. *A comparison of cardiac activity between normal and mentally retarded young males at rest and during mild exercise.* M.S. in Education, 1973, p. 68. (W. H. Osness)

461. NELSON, Monty E. *A study of the discriminatory ability of test items on the Kansas test of perceptual-motor dysfunction.* M.S. in Education, 1974, p. 184. (J. L. Pyfer)

462. ROBERTSON, Ann L. *A comparison of body images measures among second grade children who participated in a movement exploration or a traditional approach to elementary physical education.* M.S. in Education, 1974, p. 84. (J. L. Pyfer)

463. ROBITZ, James C. *Correlation of motor performance and reading readiness at the kindergarten level.* M.S. in Education, 1973, p. 70. (J. L. Pyfer)

464. SEVERINO, Anthony F. *Effects of two weight training programs on stretch improvement using the universal gym and movable weights.* M.S. in Education, 1974, p. 85. (W. H. Osness)

465. STOUFFER, Michael. *Reaction and movement time measures in educable mentally retarded children.* M.S. in Education, 1974, p. 85. (J. L. Pyfer)

466. TRUE, Susan. *Effects of a "concept of physical education" course on college women's attitudes toward physical activity.* M.S. in Education, 1973, p. 62. (W. H. Osness)

467. WEYFORTH, John S. *A study of possible anatomical and physiological changes due to supplements to the diet of varsity intercollegiate swimmers.* M.S. in Education, 1974, p. 214. (W. H. Osness)

UNIVERSITY OF KENTUCKY, LEXINGTON, KENTUCKY (Don R. Kirkendall)

468. WILBANKS, John E. *An analysis of the use of private consultants by municipal park and recreation agencies.* M.S., 1974, 85 p. (D. Vinton)

The use of private consultants by municipal park and recreation agencies located within a 300-mi radius of Lexington, Kentucky, was examined. Agencies were divided into 3 groups based on population size and were requested to complete questionnaires regarding their use of private consultants. Of the 42 respondents, 25 used consultants. Results revealed that small and medium size community agencies which used private consultants had a higher expenditure for capital improvements than those not using private consultants. Large agencies spent the least per capita for park and recreation services. Medium size communities hired consultants because their staff was not qualified to perform specific work. No significant differences were observed for the other groups. Park and recreation agencies used private consultants for technical rather than nontechnical services, and all groups agreed that professional and technical qualifications were the most important factor in selecting a consultant.

469. BACKSTROM, Kurt A. *Personalities of seventh and eighth grade basketball players as affected by participation and coach's personality.* M.S., 1974, 69 p. (D. Kirkendall)

The effects of 1 season of interscholastic basketball on the personalities of 7th and 8th grade students were investigated. If personality changes occurred they were examined to see if they were in the direction of the coaches' personality profile. *S*s consisted of JHS basketball players (N = 106), JHS nonparticipants (N = 90), and "B" team basketball coaches (N = 10). Forms A and B of Cattell's HSPQ were administered to the students and forms A and B of Cattell's 16 PF were administered to the coaches. Testing took place both before and after a 12-wk interscholastic basketball season. The results generally indicated that 1 season of participation in interscholastic basketball did not significantly affect the participants. However, participation did cause the players to be more extroverted and may have been a factor in causing them to become more group dependent with age. Participation may have been a factor in keeping the players' anxiety scores stable from 7th to 8th grades, as compared to an increase for the nonplayers. The personality modifications that did occur in the players did not appear to be in the direction of the personality profile characteristic of the coaches, with the exception of the anxiety factor where a positive relationship was noted.

470. MACPHERSON-STEWART, Johnstone F. *Comparative effects of submaximal exercise upon the duration of the triceps surae stretch reflex in obese and nonobese young men.* M.S., 1974, 98 p. (P. Teraslinna)

*S*s, all white male student volunteers in their 20's, were divided into 2 groups (obese and nonobese) on the basis of skinfold estimations of their specific gravities. The duration of different time components of the reflex was determined photomotographically both before and immediately after an exercise period on a cycle ergometer of about 6 min, the final 3 min of which involved working at a level sufficient to maintain the HR at 140 bpm. The subsequent analysis of results revealed significantly longer duration of reflex to half relaxation measures and half relaxation times in the obese group at rest and after exercise. The ratio of half relaxation time to contraction time was also found to be significantly larger in the obese group as compared to the nonobese group both before and after the exercise period. In addition, exercise had the effect of significantly increasing the rate of relaxation of the reflex and of reducing the duration of reflex to half relaxation measure in both groups.

UNIVERSITY OF MARYLAND, COLLEGE PARK, MARYLAND (David H. Clarke)

471. BAKER, John E. *The effect of hypoxic training on the capacity of the coronary tree in mature, male, Wistar rats.* M.A. 1973, 83 p. (C. O. Dotson)

The coronary capacity of male Wistar rats (N = 95) was assessed employing a vinyl acetate perfusion technique following restricted activity or forced exercise within normoxic (20.9% O_2) or hypoxic (5% O_2) environments. Training consisted of swimming three 60-sec bouts interspersed with 1-min rest periods under a 3% body-wt. overload on alternate days for 7 wk. The duration of each bout was progressively increased to a max of 105 sec. Animals exposed to the hypoxic treatment exhibited a significantly greater coronary cast wt. than those restricted in activity. It was also revealed that the normoxic and hypoxic groups possessed significantly greater cast wt. to heart wt. ratios than the control group while the control group had a significantly higher posttraining body wt. than the hypoxic group.

472. BERGEMANN, Brian W. *A cinematographic and kinematic analysis of the body center of gravity during the kip on the high horizontal bar.* M.S. in Physical Education, 1973, 83 p. (D. L. Kelley)

Uniaxial cinematography was used to record the performances of 5 *S*s, similar in body build, for 5 trials. The segmental method was used to derive the position of the center of gravity (CG) for every other frame. Displacement and velocity of the CG, times for the occurrences of specific events, angular changes of the major joints, and the displacement of the high bar were used to describe the individual performances and to compare the performances of the sample. It was concluded that the optimum back swing should be high enough (70°–85°) to develop the velocity needed to bring the CG to an elevation, during the hip flexion phase, that is higher than its elevation at the initiation of hip extension. A back swing below or above this range tended to

result in abrupt changes in direction during the hip flexion phase and a decreased minimum velocity of the CG. The hips should be flexed before the end of the forward swing of the hip or shoulder joints and CG, and after the CG has passed beneath the high bar. The hips should be extended slightly before the shoulder joint passes beneath the bar. A high minimum velocity should be maintained during the hip flexion phase. The ascension arc from the initiation of hip extension to the point where the CG is level with the bar is curvilinear and its length is dependent upon the velocity needed to bring the CG to that level. The displacement of the high bar is indicative of the forces acting upon it, with the hip extension and ascension phases causing the greatest displacement of the bar.

473. DICKSON, John F. *Comparison of body-part size estimates between parochial school and institutionalized adolescent retarded males.* M.A. in Physical Education, 1974, 78 p. (R. C. Johnson)

Parochial school (PS) males ($N = 21$) and institutionalized mentally retarded (IMR) males ($N = 17$) between the ages of 11 yr 0 mo and 14 yr 11 mo were administered a variation of Gunvald and Levin's disassembled manikin technique as a partial measure of body image. *S*s selected body part cutouts for the construction of a manikin, which in their estimation was similar in size to a live model. Low test-retest reliability *r*s on the self-estimation scores were recorded over a 1-day interval. Scoring percents were calculated for each body area for both groups. Over-estimation and exact-estimation emerged as a trend in the body part selections of the PS *S*s, while no trend was evident in the IMR *S*s. PS *S*s showed strong agreement in their selections of body part cutouts involving the live model while IMR *s*s were not able to detect body size differences among the cutout choices.

474. FRIEDGEN, Ralph. *The emotions of varsity college wrestlers prior to and after both competition and practice as measured by the Palmar Sweat Index.* M.A. in Physical Education, 1972, 61 p. (B. F. Husman)

The emotions of 5 varsity wrestlers as measured by the Palmar Sweat Index were measured every 5 min for 1 hr before and after 2 competitive matches and 2 practice sessions. The *S*s were again tested for 1 hr after the season in a "normal" environment without the stress of practice and competition. The pretest $\bar{x}$ scores for competition and practice were significantly greater than the posttest $\bar{x}$ scores. Competition and practice $\bar{x}$ scores were significantly greater than the control $\bar{x}$ scores. The competitive $\bar{x}$ scores were significantly greater than the practice $\bar{x}$ scores. A significant positive linear trend was found in the precompetitive condition, while a significant negative linear trend existed in the postcompetitive and postpractice situations.

475. GRONBECH, C. Eric. *Age and sex differences in the generality of handedness.* Ph.D. in Physical Education, 1973, 87 p. (B. F. Husman)

School age volunteers ($N = 366$) of approximate equal representation of 1st through 12th grade, both male and female, served as *S*s. The dominance of each *S*, absolute difference between right and left hand performance, was measured for grip strength, movement time, and pursuit rotor tracking. It was concluded that: significant differences in dominance existed between grammar school age children and HS age children as measured by movement time, the younger children being more dominant. No age differences in dominance existed between school age children as measured by grip strength or pursuit rotor. No sex or interaction differences in dominance existed as measured by any of the 3 tasks selected. Performance was significantly and positively correlated to dominance. The question of handedness appeared to exhibit differences as a function of the nonhomogeneous nature of its variance.

476. HASLAM, Robert W. *Capacity of the coronary tree of the rat as determined by frequency and duration of training.* M.A., 1972, 71 p. (G. A. Stull)

Wistar rats ($N = 70$) were randomly assigned to a control and 4 exp. groups. The control group remained sedentary for 8 wk, and each of the exp. groups engaged in 1 of the possible combinations of training 2 or 4 times wk over either 4 or 8 wk. Training consisted of swimming a number of 1-min trials with 30-sec rest intervals interposed between successive trials. Intensity of training was progressively raised by increasing the number of repetitions by 4 bouts/wk. Resistance consisted of 5% of body wt. for animals swimming during the initial 4 wk and 4% for

those swimming during the terminal 4 wk of the study. Volumetric capacity of the coronary arterial tree was assessed by a vinyl acetate perfusion technique. Both the coronary cast wt. and cast wt. to body wt. ratios were higher for the exp. groups. The body wts. were greater for the control group than for the combined exp. group but smaller for rats training for a 4-wk period than for rats training for 8 wk.

477. SMITH, Karen L. *The role of games, sport, and dance in Iroquois life.* M.A. in Physical Education, 1972. 109 p. (M. H. Eyler)

The Iroquois cultivated by sport and dance the qualities of strength, speed, agility, endurance, and rhythm. Their sport included lacrosse, javelin throw, snow snake, snow boat, foot races, archery, sham fights, and funeral games. Sacred dances such as the Great Feather Dance, Thanksgiving Dance, War Dance, and Calumet Dance not only served recreational ends but also were integral aspects of religion and ceremony. Numerous social dances were performed for diversion and for fun. Games of chance fell into 2 categories: dice games such as deer buttons and the bowl game, and guessing games including the hand game, the game of straws, and bell-and-shoe. Games, sport, and dance found a specific place in the many Iroquois ceremonials to honor the creator and his helpers. These activities contributed to culture through their social values and were useful in training for war, acquiring skill and grace, contributing to recreational life, entertaining, and venerating the gods. They served as a means for promoting tribal loyalty and solidarity, educating the young, and providing an outlet for healthy, competitive urges. There was a close interrelationship of social organization, religion, government, recreation, and education in the Iroquois nations.

UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN (V. L. Katch)

478. MOXLEY, Susan Lammis. *Attention demand and short-term kinesthetic memory.* Ph.D. in Physical Education, 1974, 99 p. (R. A. Schmidt)

479. ROSS, Iva. *Interference in discrete motor tasks: A test of the theory.* Ph.D. in Physical Education, 1974, 141 p. (J. E. Farrell)

An exp. was designed to test the interference theory of forgetting in a motor skills context. It was hypothesized that learning a second motor task, in which the spatial or temporal dimension of the original task was manipulated, would retroactively interfere with the recall of the original task. The original task was a timed arm movement in which the pattern of the arm movement formed a slightly skewed "Z." The total movement criterion time was 850 msec. No significant differences in variability within the makeup of the responses were found; thus, interference as reflected by the measures used was not suggested. The hypothesis that interference would be reflected by increased errors during recall of the original response was supported in the temporal task condition but not in the spatial task condition.

480. SALMONI, Alan. *The attention demands of input monitoring.* Ph.D. in Physical Education, 1974, 116 p. (R. A. Schmidt)

An exp. was designed to test Keele's (1973) theory of attention demand. The operation studied was input-monitoring, which was predicted from Keele's theory to be nonattentive. A secondary task technique was employed to determine the attention demands of the input monitoring. It was predicted that an increase in the attention demands of input monitoring would cause a concurrent increase in the criterion task variability. *Ss* ($N = 18$) were required to monitor, visually or kinesthetically, information presented separately or simultaneously, while arm cranking at a rate of 100 rpm. *Ss* were assigned to 1 of 3 exp. conditions depending on the type of input monitored: visual, kinesthetic, visual-kinesthetic. A trial consisted of 3 intervals: prestimulus interval, monitoring interval, the response interval. Each *S* received 400 trials over 5 days of testing. It was found that cranking speed variability increased during response initiation (foot response) which implied that this operation was attention demanding. Of major interest was the finding that cranking speed variability did not differ for the 3 monitoring conditions during the monitoring interval. Thus, it was inferred, in support of Keele's theory, that input monitoring did not appear to require attention. This conclusion was supported by the finding that single-input RT was not different from dual-input RT, which seemed possible only if input monitoring was a nonattentive process, as hypothesized.

481. SHEA, John. *The effects of labeling on motor short-term memory*. Ph.D. in Physical Education, 1974, 121 p. (R. A. Schmidt)

482. WRISBERG, Craig Alan. *Interference and warm-up in motor short-term memory*. Ph.D. in Physical Education, 1974, 128 p. (R. A. Schmidt)

Ss ($N = 184$) were used in 2 experiments to test the influence of interference and warmup factors in motor short-term memory. It was predicted that an appropriate opposite-hand warmup would reduce short-term retention loss in the recall of a criterion position if warming up was of the same response class as the criterion, and if the warmup was performed immediately before presentation of the criterion position. The criterion task involved blindfolded linear positioning with the right hand from a fixed starting position a distance of 17 cm (exp. I) or 32 cm (exp. II). Exp. variables were: the number of positions presented before presentation of the criterion and recalled in reverse order after its recall, hand and apparatus used for presentation and recall of prior positions, and retention interval length. The criterion position was fixed during the experiments and in exp. II, *Ss* were informed of this fact. In neither exp. did conditions given before left-hand positioning demonstrate less error during recall of the criterion position than other groups. This suggested that for motor skills which are not well-learned, warming up may not have appreciable benefits.

UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA (J. Shick)

483. BISHOP, P. J. *Dynamic response criteria for the design of ice hockey helmets*. Ph.D. in Physical Education, 1974, 277 p. (J. F. Alexander and D. Frohrib)

To generate criteria for the design of ice hockey helmets, a mathematical model of an ice hockey helmet-skull and brain system was developed for a sideboard and a puck collision. Six material specimens used as helmet liners and 2 separate helmet models were subjected to impact tests by means of a pendulum striker device. Measurements were made of the max deceleration in the pendulum and of the amount of deflection in the material upon impact. The test-retest reliability coefficient for measuring deflection was $r = .83$. Results of the impact test revealed that the materials and helmets display nonlinear behavior under impact loading, that different sites on the same helmet absorb different amounts of energy, and that the helmet absorbs more energy than the material specimen. A linear approximation of the dynamic spring constant of the linear materials was made and was used in the solution of the differential equations of motion governing the 2 collisions. Solutions were obtained for the underdamped case and for fractions of critical damping $\xi \leq .5$. To prevent the helmet from bottoming and to maintain linear head acceleration and angular head velocity at or below levels deemed tolerable for humans, the helmet liner should provide a reasonably high value of critical damping ($.15 \leq \xi \leq .35$), should be approximately 1 in. thick, and should have a dynamic spring constant of 600 lb/in. $\leq k_d \leq$ 1200 lb/in. Protection from head injury by means of a helmet alone may not be possible at impact speeds in excess of 20 ft/sec (13.5 mph) or puck speeds in excess of 147 ft/sec (100 mph).

484. ELLSWORTH, Nancy. *Survey of chemical use and decision-making influences among eighth grade and tenth grade students in the use of chemicals for nonmedical purposes*. M.A. in Physical Education, 1974, 73 p. (H. M. Slocum)

485. FREDERICK, A. Bruce. *Programmed movement instruction (P.M.I.) and its effect on learning a complex, gross motor skill in gymnastics*. Ph.D. in Physical Education, 1974, 300 p. (J. Shick)

Three groups of college men ($N = 37$) were given 3 methods of instruction for learning a regular kip on the horizontal bar. Exp. (E) *Ss* used programed movement instruction (PMI) materials exclusively. The PMI method was created and developed by the investigator. An instructor-led group (I) was given instruction following a precise gymnastic progression inclusive of verbal and manual guidance. A control group (C) was given no overt instruction but observed a loop-film-projected model performance. Preexperimental and postexperimental trials were evaluated and scored by a special cinematographic technique developed by the investigator who used 23 dichotomously scored criteria. The Wettstone Index was employed for purposes of treatment

assignment and $\bar{x}$s were classified "high," "medium," and "low." No significant differences attributed to treatments E, I, or C were found. *Ss in each treatment group made significant* improvement ($p < .01$). Control *Ss*' $\bar{x}$ scores were consistently lower than those of *Ss* in groups E and I despite their exposure to significantly more trials than *Ss* in groups E and I. Treatment C was judged to be the least efficient. PMI was found to be an effective method of instruction of special value for teachers with little gymnastic expertise.

486. HANSEN, Phoebe Jane. *An opera workshop in an urban recreation program.* M.A. in Recreation and Park Administration, 1974, 88 p. (F. Chapman)

487. MILLER, Randolph W. *The effect of varied recovery intervals following moderate warm-up on physical and physiological performance.* Ph.D. in Physical Education, 1974, 159 p. (J. F. Alexander)

Max $\dot{V}O_2$ was determined on 21 college men by means of a continuous step-up treadmill test for which validity (compared with intermittent testing) and reliability were established. Moderate warmup, consisting of an 8-min treadmill run and eliciting 70% of each *S*'s max $\dot{V}O_2$, was determined by a series of multiple treadmill runs. Following this moderate warmup, *Ss* recovered for 5, 10, 15, or 20 min (randomly assigned) then performed: the continuous treadmill test for assessing changes in max $\dot{V}O_2$ and an endurance treadmill run at the work level eliciting the *S*'s established max $\dot{V}O_2$. Max $\dot{V}O_2$ did not differ between the continuous stepup and intermittent tests. Reliability of the continuous test was .99. The max $\dot{V}O_2$ (ml/kg/min), O_2 pulse (ml/beat), and treadmill endurance performance (sec), following each recovery interval treatment, using a 2-way ANOVA, were significant ($p < .01$). A set of orthogonal contrasts applied to significant $\bar{x}$s resulted in a significant ($p < .01$) linear trend indicating an inverse linear relationship between recovery interval length and these 3 measures. Optimal recovery interval length contributing to peak subsequent physiological (max $\dot{V}O_2$) and physical (endurance run) performance was 5 min.

488. STAPLES, Harold T. *An electromyographic analysis of selected exercises for the prevention of knee injury.* Ph.D. in Physical Education, 1973, 252 p. (M. U. Wilson)

The activity of 8 muscles (vastus medialis, vastus lateralis, rectus femoris, semitendonosus, semimembranosus, biceps femoris, gracilis, and sartorius) during 5 selected resistive exercises (knee extension, knee curl, vertical leg press, half squat, and Klein bench technique) was examined using EMG and Elgon techniques. Results indicated that half squat elicited the greatest activity in VM and VL; bench technique ranked first for RF; knee curl was most active for all flexors examined; vertical leg press was ranked second for hamstrings. VM and VL. The conclusions drawn by inspection analysis were strongly supported with statistical agreement. Most exercises elicited muscular activity over a limited range of knee joint movement except knee curl exercise which activated all flexors throughout a complete range of movement and vertical leg press which activated quadriceps during first half of extension and hamstrings in last half of positive work. The half squat, with toes pointed outward, diminished muscular activity in VM oblique, not in VM longus. Small differences in favor of front squat over back squat were found. The full squat elicited more activity, higher intensity, and over a greater range of movement in the majority of muscles than did half squat.

489. WACHHOLZ, William H. *The nature of man and the nature of competition in sport and athletics.* M.A. in Physical Education, 1974, 58 p. (R. G. Osterhoudt)

490. WENTWORTH, Charlotte E. *An investigation of the handicap stroke allocation system at the University of Minnesota golf course as it relates to selected golfing skill levels.* 1974, 48 p. (B. D. Anderson)

UNIVERSITY OF MISSOURI, COLUMBIA, MISSOURI

(J. Roberts)

491. AMES, Stephen A. *A comparison of various circulatory-respiratory tests with state of conditioning.* Ph.D., 1974, 142 p. (B. Londeree)

This study attempted to determine the best predictor of state of conditioning among the following physiological parameters: maximal aerobic power (MAP), HR response during a standard workload, the rate of HR recovery from a standard absolute workload, the threshold of anaerobic

metabolism, and HR response to the 40–70–40 test. A secondary purpose was to determine the validity of 5 indirect measures of the anaerobic threshold, namely: changes in min ventilation, CO_2 production, RQ, VE, and O_2 consumption from the 3rd to the 6th min of a constant workload. Male volunteers ($N = 26$) were classified as low-fit, moderate-fit, or high-fit according to the amount of recent physical activity. Correlation ratios were calculated between activity levels and each dependent variable. Differences among rs were tested by Hotelling's t test. Each of the dependent variables was significantly related to activity level except the rate of HR recovery from a standard absolute workload. The r ratios (absolute values) ranged from .33 to .93. The indirect measures of the anaerobic threshold generally demonstrated poor validity with the exception of the VE.

492. BERG, Kristen E. *Effects of rapid-movement, nonprogressive exercise on velocity and power.* Ed.D., 1973, 152 p. (J. Roberts)

It was hypothesized that training with rapid movements would significantly increase velocity and power without a concurrent gain in strength. Exp. groups were designed to test for the training effects of resistance (2, 12, and 25 lb) and velocity of movement (rapid and slow) on strength, velocity, and power. Six exp. groups (181 total *S*s) trained on alternate days 3 time/wk for 6 wk. Time was measured in msec by means of photocells. The training exercise employed was the barbell press from a seated position. The 1-way ANOVA for each dependent variable produced no significant ($p > .05$) differences among groups. However, there was a trend favoring the rapid-movement groups in the development of velocity and power. It was concluded that rapid-movement nonprogressive resistance exercise was not significantly more effective in developing velocity and power with 2, 12, or 25 lb than slow movement exercise, progressive-resistance exercise, or calisthenics exercises.

493. McCARTY, Michael G. *Physiological effects of rapid and extreme weight reduction through calorie restriction in collegiate wrestlers.* Ph.D., 1974, 214 p. (J. Roberts)

The effects of weight reduction other than by dehydration were determined. A rapid weight-loss group ($N = 12$) reduced 5% body wt. in 6 days and was compared to a nonweight-loss group ($N = 13$). Multivariate ANOVA of posttest scores revealed statistical differences on: body wt., body fat percent, urinary ketones (weight-loss group exhibited ketosis), PWC_{170} (weight-loss group exhibited lower cardiovascular fitness), respiratory exchange ratio (weight-loss group was lower), and relative strength (weight-loss group was higher). No differences were noted on: max vo_2 per unit LBM, simple and total-body response times, anaerobic power, and urinary pH. An extreme weight-loss group ($N = 5$) retaining less than 4.5% body fat, was compared with a control group ($N = 9$) retaining over 7% body fat. Statistical analysis by the Mann-Whitney U revealed no demonstrable differences on any of the dependent variables. Rapid wt. loss of 5% total body wt. in 6 days incurred ketosis resulting in lowered cardiovascular efficiency with a concurrent lower respiratory exchange ratio; relative strength was facilitated. Weight loss until 4.5% body fat was retained did not adversely affect the parameters measured so long as the daily diet was sufficient to cover the metabolic requirements.

494. WHITWORTH, Michael D. *Correlation of reaction times with Purdue Perceptual-Motor Survey performances of trainable mentally retarded males.* M.A., 1974, (L. Johnson)

*S*s were males aged 8 to 14 yr ($N = 25$) who were residents of Woodhaven Learning Center in Columbia, Missouri. Simple visual RT was measured using the Dekan Automatic Performance Analyzer. A Pearson r was obtained between RT and each of the separate 22 single scores, the total of these scores, and the sum of each of the 5 subtest scores on the Purdue Perceptual-Motor Survey. Once determined, the obtained r was tested for significance using Fisher's t test for significance. An alpha level of .05 was used. Results of the study showed that simple visual RT was significantly related to the following items: identification of body parts, Kraus-Weber, Angels-in-the-Snow, chalkboard double circle, form performance, the summation of all single score variables, and the summation of body image and differentiation subtest scores.

UNIVERSITY OF MONTANA, MISSOULA, MONTANA

(Walter C. Schwank)

495. BLACK, James A. *Wilderness and physical activity attitudes of college age backpackers.* M.S. in Recreation, 1974, 98 p. (J. F. Meier)

496. DeVRYE, Catherine. *An investigation of attitudes of physical education majors and those attitudes of their respective parents toward physical education*. M.S., 1972.

497. DICKEY, Howard L. *The influence of an outdoor survival experience upon the self-concept of adolescent boys and girls*. M.S. in Recreation, 1974, 81 p. (J. F. Meier)

498. FRENCH, David P. *The relationship between participation in a recreational program and self-concept of delinquent males*. M.S. in Recreation, 1974, 79 p. (L. Heywood)

499. HOLMAN, Roy P. *An analysis of coach-athlete relationships*. M.S., 1973. (B. Sharkey)

500. SCHLEGEL, James C. *Leisure time study of the residents of Cut Bank, Montana*. M.S. in Recreation, 1974, 145 p. (J. Meier)

501. THOMSON, Rex. *Participation in interscholastic athletes and delinquency*. M.S., 1974, (J. Dayries)
Four specific hypotheses were formulated and tested concerning the relationship between interscholastic athletics and delinquency of HS boys. The *S*s were classified as delinquent or nondelinquent during their HS careers following and examination of city and county juvenile court records. Results indicated that there were no significant differences between athletes and nonathletes with regard to the commission of delinquent acts. In addition, no significant differences were established between major sport athletes vs. minor sport athletes and athletes with high amounts of participation vs. low amounts of participation.

UNIVERSITY OF NEBRASKA, LINCOLN, NEBRASKA (Doris J. O'Donnell)

502. BOUSEK, Mary Jo D. *Women intercollegiate athletes and self-esteem*. M.Ed. in Physical Education, 1974, 121 p. (D. J. O'Donnell)
College women athletes indicated higher self-esteem than college women nonathletes as measured by the Coopersmith Self-Esteem Inventory and analyzed by ANOVA. All the athletes ($N = 111$) and the team sport athletes ($N = 72$) had significantly ($p < .05$) higher total and general self-esteem scores than the nonathletes ($N = 103$). The 2 groups of athletes plus the individual sport athletes ($N = 39$) also had slightly, but significantly, higher social self-esteem scores. There was no significant difference between any of the athlete groups and the nonathletes on home-parents esteem or school-academic esteem and no significant difference between team sport athletes and individual sport athletes on the total score or any subscale score. The individual sport athletes had slightly, but significantly, higher Lie scores than the team sport athletes, indicating more defensive reaction. These scores were also significantly more variable. A test-retest reliability study of the SEI with college women showed the following reliabilities: .88, total score; .88, general self subscale; .81, home-parents subscale; .80, social self-peers subscale; .85, school-academic subscale.

UNIVERSITY OF NORTH ALABAMA, FLORENCE, ALABAMA (W. G. Glidewell)

503. PARKER, Linda Kay. *Effects of various exercises on kinesthesis in junior high school girls*. M.Ed., 1974, 63 p. (W. Glidewell)
Eighth grade girls were subjected to 4 treatments in an attempt to determine whether or not kinesthesis could be influenced. Each *S* was tested for balance and left arm abduction. *S*s were then divided into 4 groups and treated for 6 wk using a top spin activity, practicing the performed task, wt. lifting, and regular PE activities. *S*s were then retested and data from test, retest were analyzed by ANOVA, rank-difference *r*, and tabular analysis. It was found that exercises can influence kinesthetic performance ($p < .05$). It was also found that the more specific the test, the more improvement.

UNIVERSITY OF NORTHERN COLORADO, GREELEY, COLORADO

(Mary A. Behling)

504. GENCH, Barbara Elizabeth. *Cardiovascular adaptations of college women to training at predetermined individualized heart rate levels for varied durations.* Ed.D. dissertation, 1974, 63 p. (B. Everett)

505. GUNNER, Richard John. *A discriminant analysis of certain needs of physical education students at the University of Northern Colorado.* Ed.D. dissertation, 1974, 92 p. (D. A. Phillips)

506. HUNT, S. Jack. *The relationship between height, weight, age, and the ability to perform Manitoba's physical and motor fitness performance test for junior high school students.* Ed.D. dissertation, 1974, 172 p. (R. Montgomery)

507. KIRCHMANN, Frederic Dean. *The interrelationship of lactic acid and blood pH to performance in selected competitive running events.* Ed.D. dissertation, 1974, 74 p. (J. H. Barham)

508. LA LONE, Patricia A. *The professional ski instructors of America: a personal-social profile.* Ed.D. dissertation, 1974, 192 p. (G. H. Sage)

509. MITCHELL, Robert T. *A conceptual analysis of "art as experience" and its implications for sport and physical education.* Ed.D. dissertation, 1974, 129 p. (G. H. Sage)

UNIVERSITY OF OKLAHOMA, NORMAN, OKLAHOMA

(Trent E. Gabert)

510. AUSTIN, Donna Kaye. *A comparison study of three teaching methods in archery.* M.E. in Physical Education, 1973. (T. E. Gabert)

Ss, having no experience in archery, were randomly selected from each of 3 soph. HS girls' PE classes (total $N = 45$). Each class was then randomly assigned 1 of the 3 teaching methods (auto-instructional-packet learning, teacher-directed learning, and a combination auto-instructional-packet-teacher-directed learning). The 3 classes were instructed in archery 3 times/wk for 4 wk. Pre- and posttests were administered to measure achievement in archery. ANCOVA was used to adjust for the difference between the groups because intact classes were used. Results showed no demonstrable difference in the effect of the 3 teaching methods upon skill or knowledge in archery. Application of t tests did show significant gain in both skill and knowledge for each method ($p > .01$). It was concluded that auto-instructional-packet learning is a possible teaching method for initial instruction in archery for 15- and 16-yr-old girls.

511. MAGERS, John Talmadge. *The effects of weight reduction for wrestling on junior high school wrestlers.* Master of Science, 1974. (T. E. Gabert)

512. NATIONS, Teena. *Relationship between Brown's golf skills battery and scores on 18 holes of golf at the University of Oklahoma.* Master of Education in Physical Education, 1973, (T. E. Gabert)

UNIVERSITY OF OREGON, EUGENE, OREGON

(E. Reuter)

513. AKINS, Leigh A. *A study examining the effects of self and team competition as indicated by performance in the 50-yard dash and the standing long jump of sixth grade students.* M.S. in Physical Education, 1974, 64 p. (E. R. Reuter)

514. ALBERTSON, Roxanne M. *Physical education in New England schools and academies from 1789 to 1860: Concepts and practices.* Ph.D. in Physical Education, 1974, 212 p. (B. F. McCue)

Major types of PE advocated and included in schools, and individuals, ideas, programs, and events contributing to changes in PE were traced. Concern for students' health and correction of postural deviations were pervading influences for PE implementation in schools. Barnard, Alcott, Beecher, and Higginson campaigned for systematic PE programs supervised by trained teachers. Military training, gymnastics, manual training, domestic economy, calisthenics, and games and sports were advocated and included in over 110 schools. Each type of PE continued to be advocated and included in programs throughout the period. The kind of institution and amount of available space influenced the type of PE included. Labor programs were included in sectarian academies and seminaries as utilitarian exercise. In academies military exercises and German gymnastics were provided for exercise during nonschool time. After 1840, games and sports became student organized and controlled for athletic competition. Lewis gymnastics and calisthenics, adapted for use in school rooms, became accepted as appropriate public school activities by 1860. The ALSM Academy, Round Hill, Mount Holyoke, Hartford Female Seminary, and Gunnery served as PE program models for other schools. The advocacy and implementation of PE became increasingly widespread throughout New England between 1789 and 1860.

515. BATES, Barbara J. *The status of summer-time organized camping for the handicapped.* Ed.D. in Recreation and Park Management, 1973, 205 p. (P. M. Ford)

Camps were randomly selected to receive questionnaires with 43% of 839 camps responding. Data were sought to determine if youth agency, private-independent, or church camps were significantly different from camps serving the handicapped. Conclusions were that nonspecialized camps were fundamentally different from specialized camps in setting, camper populations, staff competencies, and training. The status of camping services for the handicapped varied among the camps as follows: disproportionate numbers and kinds of handicaps served, emphasis differences on existing services, differences in willingness to serve handicapped, methods of handicapped camper recruitment, and modifications deemed necessary to serve the handicapped.

516. BRIGGS, Christopher A. *A measure of the fractional utilization of aerobic capacity in middle-distance runners.* Ph.D. in Physical Education, 1974, 45 p. (E. Evonuk)

College males, ($N = 10$) who were middle-distance runners representing the University of Oregon varsity track team, were administered tests to determine $\dot{V}O_2$ max, fractional use of $\dot{V}O_2$ max, and performance time over a 2-mi run. $\dot{V}O_2$ max and fractional use of $\dot{V}O_2$ max were tested by having the *S*s run on a motor-driven treadmill. Means and SD's were computed from the raw scores collected from tests and measurements of body size and respiratory function. A product-moment r was determined between all variables tested. The $\bar{x}$ $\dot{V}O_2$ max value was similar to the highest values reported by other investigators from world- and championship-class middle-distance runners. The ability to use a large fraction of the aerobic capacity was found to correlate more highly with the time required to run the distance of 2 mi than was the size of the individual's $\dot{V}O_2$ max per se.

517. BROEKER, Herman J., Jr. *Influence of various combinations of model performances and feedback upon the learning of a complex motor skill.* Ph.D. in Physical Education, 1974, 100 p. (J. D. Adler)

Male college students ($N = 90$) at Pacific Lutheran University were randomly assigned to 5 groups receiving differential combinations of modeling and feedback. A 4-wk training period followed an introductory session. Two practice sessions, 15 min in length, were given each wk. Each *S* received individualized instruction and practice relative to his particular treatment. The time duration was kept constant over all practice sessions, not the number of practice trials per session. Under this format each *S* viewed his respective model type and feedback source a varying number of times/practice session due to the difference in the length of learning cycles for each treatment. There were no significant differences between the 5 exp. groups on the performance of the complex motor skill; there was a significant improvement with practice in the *S*s' performance of the motor skill over the 9 test sessions. An analysis of results indicated that the use of various combinations of repeated model performances and feedback, requiring longer learning cycles but fewer practice trials, did not affect the rate of learning the motor skill.

518. BUCKIEWICZ, Diane R. *An analysis of leader behavior in the physical education departments of the community colleges of California, Oregon, and Washington.* Ed.D. in Physical Education, 1974, 141 p. (B. F. McCue)

This study compared perceptions of faculty and department chairmen groups on 12 dimensions of leader behavior. Results demonstrated a similarity in group perceptions with the following exceptions. Leader and faculty groups differed in the dimensions of consideration and integration. Male and female faculty groups differed in the dimensions of initiation of structure, production emphasis, integration, consideration, and superior orientation. Male and female leader groups differed in the integration dimension. Male and female faculty groups with male leaders differed in the initiating structure, production emphasis, integration, persuasiveness, consideration, and superior orientation dimensions. Male and female faculty groups with female leaders did not differ significantly. Faculty groups with leader maturity 20–40 and 41+ yr differed in the consideration, superior orientation, and persuasiveness dimensions. Faculty groups with leader administrative experience 0–8 and 9+ yr differed in the representation, superior orientation, and persuasiveness dimensions. Faculty groups with leader educational course work 0–12, 15–25, and 25+ units demonstrated differences in role assumption, persuasiveness, initiation of structure, and production emphasis dimensions. Faculty groups with school enrollments of 600–2500, 2700–6000, and 7200+ demonstrated differences in the tolerance of uncertainty and superior orientation dimensions. Faculty groups from California, Oregon, and Washington demonstrated difference in the superior orientation dimension.

519. BUCKIEWICZ, Frank A. *An investigation of leadership behavior in athletic departments of selected universities and colleges.* Ed.D. in Physical Education, 1974, 87 p. (B. F. McCue)

A total of 24 athletic directors of college and university athletic departments and 103 coaches from the departments served as *S*s for this study. *S*'s perception of 12 dimensions of leadership behavior was obtained through use of the survey instrument, Leader Behavior Description Questionnaire—Form XII. Results revealed that athletic directors as a group and coaches as a group generally perceive the leader behavior of the athletic directors quite similarly. In addition, coaching staff members' perception of their immediate athletic director's behavior was very much in agreement with the estimates given by the athletic director. Finally, the type of activity or sport coached had no significant effect on the coaches' perception of the athletic directors' behavior.

520. CARRE, Frank A. *Effect of imitative learning and augmented feedback on the initial stages of learning a novel complex motor skill.* Ph.D. in Physical Education, 1972, 89 p. (J. D. Adler)

The effect of imitative learning and selected augmented feedback conditions was examined in relation to learning the discus turn and throw. A 2-factor 3 × 4 between groups exp. design employing 3 model forms and 4 augmented feedback conditions resulted in 12 exp. treatment groups. *S*s were 144 10th-grade boys from Edmonton, Alberta, who were randomly assigned to 1 of the 12 groups. The 3 model forms used were control group, a standard 8-mm continuous film-loop model, and a live model. The 4 augmented feedback conditions were a control group and videotape replay—instructor assistance conditions. Posttest improvement was shown by all exp. groups. There was no evidence to support any particular model or augment feedback condition as the critical variable in the initial stages of learning the discus turn and throw. A significant difference was found between criterion measures of distance and form.

521. COOLEY, Susan J. *The construction of a muscular strength test on the Universal Gym Machine for college women.* Ph.D. in Physical Education, 1973, 74 p. (E. R. Reuter)

Six Universal Gym Machine strength tests and 12 anthropometric measures were administered to 60 University of Oregon women students, ages 18–26 yr. The leg press—750 and the knee extension tests were the best single raw and T score predictors, respectively, of total body strength (r's = .897, .833). The best 3-item test using raw score data for the prediction of total body strength was composed of leg press—750, knee extension, and arm curl (R = .986). The best 3-item test using T score data for the prediction of total body strength was composed of knee extension, bench press, and adductor pull—scapulae (R = .958). Body wt. correlated the highest (r = .497) of single anthropometric measures and thigh girth/chest girth correlated the highest (r = .501) of body indices with total body strength. The best combination of anthropometric measures and indices for the prediction of total body strength was standing ht./body wt., thigh girth/chest girth, and arm girth (r = .625).

522. COX, Richard H. *The relationship between selected volleyball skill components and team performance of men's Northwest double "A" volleyball teams.* Ph.D. in Physical Education, 1973, 76 p. (J. D. Adler)

The relationship between team performance in volleyball and the skill components of serving, service reception, setting, spiking, spike defense, and free ball passing was investigated through adapted charting procedures. A purposive sample of 107 games between the best "AA" teams in 9 1972–73 Northwest volleyball tournaments were charted. Results indicated that, considered together, the skills studied were significantly ($p < .05$) related to team performance. Further analysis revealed that: serving and free ball passing were of little value in predicting team success; spiking and spike defense made the greatest contribution toward predicting success; and the order of volleyball skills most influential in predicting team success was spiking, followed by spike defense, service reception, setting, serving, and free ball passing.

523. EMES, Claudia G. *A comparison of wheelchair and nonwheelchair athletes on specified measures of physical fitness.* Ph.D. in Physical Education, 1973, 70 p. (E. P. Wooten)

Wheelchair athletes of national caliber ($N = 20$) were compared to local athletes ($N = 20$) on tests of total work output during arm ergometry, physiological responses to arm work, and selected cable tension measures. Following the testing, differences between the $\bar{x}$ performance scores for each group showed that nonwheelchair athletes had significantly higher performance levels on total work output, max HR, expiratory vol., max VO_2. However, there was no significant difference between the 2 groups on measures of max respiration rate, max VO_2 when body wt. is factored out, and upper body strength.

524. ESKRIDGE, Veronica L. *Effects of hypnotic and placebo suggestions on performance of high and low hypnotically susceptible subjects.* Ph.D. in Physical Education, 1972, 97 p. (J. D. Adler)

Two aspects of hypnotic phenomena were investigated: (1) the effect on performance of the independent variables: hypnotic induction (Hyp), posthypnotic suggestion (Sug), and waking placebo (Pl) suggestion; and (2) the performance of individuals differing in degree of hypnotic susceptibility. Eighty *S*s were classified as high hypnotically susceptible (Hi S) or low hypnotically susceptible (Lo S) on the basis of the Harvard Group Scale of Hypnotic Susceptibility. Reaction time (RT) and movement time (MT) served as the dependent variables. The performance on post RT of all Hi S was significantly better than that of the Lo S regardless of the independent variable exposure. No significant differences in RT were evidenced between independent variable groups when degree of hypnotic susceptibility was not considered. When interaction effect was considered the control group exhibited the best RT performance followed in order by Hi Sug, Hi Hyp, and Hi Pl. No significant differences in RT were noted between the independent variable groups of Lo S. No significant differences in MT were exhibited by any grouping of *S*s.

525. GILBERT, Marc-Andre. *Analysis of some motivating factors influencing the participation of adults in regular strenuous physical activity on their leisure time.* M.S. in Physical Education, 1974, 106 p. (B. F. McCue)

What motivates adults over the age of 25 to adhere to and maintain a regular jogging program? The *S*s of this study were 80 faculty members, graduate students, administrators, and staff of the University of Oklahoma campus divided into joggers and nonjoggers. Motivation forces were measured by Cattell's motivation analysis test and tests of attitudes and beliefs about jogging. The results revealed significant differences between the joggers and nonjoggers in terms of their attitudes toward jogging (.77 point-biserial *r*) and beliefs about jogging (.35 point-biserial *r*). Motivation as measured by Cattell's MAT showed the 2 groups similar and quite average. The conclusions were that with respect to the limitations of the study, joggers and nonjoggers were influenced by similar fundamental drives. However, the joggers had more positive attitudes and beliefs about jogging than the nonjoggers.

526. HAWES, Michael R. *The migration of the rabbit muscle semimembranosus following surgical alteration of the muscle function and site of insertion.* Ph.D. in Physical Education, 1974, 78 p. (E. Evonuk)

Six groups of New Zealand white rabbits ($n = 6$) were used to observe the relationship between muscle migration and both muscle function and site of muscle insertion. Surgical procedures were used to render the exp. muscle nonfunctional or to move the attachment 5, 10, or 20-mm distal to

its original insertion. The rabbits were observed between the ages of 7 and 20 wk. Data representing the distance migrated by *m. semimembranosus*, length of tibia, and wt. of associated muscles were collected and analyzed by ANOVA procedures. A greater ($p < .05$) migration was observed when the *m. semimembranosus* was left intact and the muscle on the opposite limb was severed and reattached in the same position. When the exp. muscle was cut and reattached distal to the original site it migrated further ($p < .05$) than the control which was cut and reattached in the same position. The exp. muscle that was moved 20-mm migrated further ($p < .05$) than any other exp. or control group observed. No difference was observed between the migration of the exp. nonfunctional and undisturbed control muscle.

527. LOVEYS, Frederick R. *Administrative procedures and budgetary analyses developed in the allocation of student incidental fees at the University of Oregon.* M.S. in Physical Education, 1974, 136 p. (B. F. McCue)

528. MORRIS, Gordon S. *The effects ball color and backgroundl color have upon the catching performance of second, fourth, and sixth grade youngsters.* Ph.D. in Physical Education, 1974, 95 p. (E. P. Wooten)

Caucasian ELE students ($N = 90$) in grades 2, 4, and 6, attending 2 schools in Eugene, Oregon, attempted to catch 30 balls. Five balls for each of the 3 ball collors (blue, yellow, white) were projected toward each *S*. Each of the ball colors was projected iin front of a black background and a white background. A catching score was given to each catclh attempt. A 4-way ANOVA for repeated measures was computed. Significant *F* scores ($p \leq .10$)) for the main effects of ball color, sex, and grade were obtained. The *F* score for backgroundl was not significant ($P > .10$). Significant *F* scores ($p \leq .10$) were obtained for the following imteractions: grade × sex, grade × ball color, sex × background, ball color × background color. Blue and yellow balls produced significantly higher catching scores than did white balls. Various combinations of ball color and background color produced high catching scores. Blue balls projected against white background produced the highest catching score. Males preferred blue balls and black background, females preferred yellow balls and black background. Ball color and background influenced the catching performance of the *S*s.

529. PATE, Russell R. *The effects of artificial polycythemia on the endurance capacity and postexercise plasma lactic dehydrogenase activity of rats.* Ph.D. in Physical Education, 1974, 51 p. (E. Evonuk)

Three related exp. were conducted to test the hypotheses that artificially induced polycythemia enhances endurance capacity and alters the normal postexercise increases in plasma enzyme activities. Maximal oxygen uptake ($\dot{V}O_{2\,max}$) and work time to exhaustion during short duration exhaustive swimming exercise (≤30 min), work time during swimming exercise of long duration (≤7 hr), and plasma lactic dehydrogenase (PLDH) activity following 3 hr of submaximal swimming exercise were observed in polycythemic and control groups of rats. Polycythemia (hematocrit = ~60%) was induced by the intraperitoneal injection of 4 ml of packed red blood cells obtained from donor rats. $\dot{V}O_{2\,max}$ was measured via an open-system flow-through calorimetry technique. Induction of polycythemia resulted in statistically insigmificant increases in $\dot{V}O_{2\,max}$ and short duration work time and a statistically insignificant decrease in long duration work time ($p > .05$). It was concluded that induction of polycythemia did not significantly affect the ability of rats to perform endurance exercise. Induction of polycythemia produced a significant increase in PLDH activity following submaximal exercise ($p < .01$). It was hypothesized that this increase was indicative of increased metabolic stress.

530. RHODES, Edward C. *The effect of training on the rate constant for the kinetics of oxygen uptake and the relationship to maximum oxygen consumption.* Ph.D. in Physical Education, 1972, 54 p. (E. Evonuk)

Male sedentary *S*s (19–25 yr) from the University of Oregon underwent pre- and postmeasurements of the rate constant (k) for the kinetics of $\dot{V}O_2$ as represented in the following equation: $\dot{V}O_2\,(t) = \dot{V}O_2\,(ss)\,(1 - e^{-kt})$. Max. $\dot{V}O_2$ was also measured. The testing was interspersed with 9 wk of vigorous distance running training. Correlated *t*-ratios showed significant increases between initial and final determinations, max $\dot{V}O_2$ and half reaction time values ($p < .01$). A significant relationship ($\gamma = .72$, $p < .01$) was determined between max $\dot{V}O_2$ and calculations. Also a significant r of .82 ($p < .01$) was obtained between the rate constant gains and the max $\dot{V}O_2$ gains. This relationship establishes k as being a meaningful indicator of cardiorespiratory fitness.

531. RUURS, Willem C. J. *A descriptive comparison of management policies and problems of selected national park systems as they relate to the management of the proposed Dutch national park system.* M.S. in Recreation and Park Management, 1974, 75 p. (R. P. Zaus)

532. SIDERS, Ronald A. *Evaluation of strength and flexibility of the hip joint during a season of gymnastic training.* Ph.D. in Physical Education, 1974, 382 p. (L. R. Geser)
Case studies were developed on 16 varsity gymnasts as well as profiles of 8 strength and 5 flexibility tests of the hip joint administered at 3-wk intervals. Each *S* participated in a 30-min exercise period of isometric and isotonic contractions plus static stretching using neuromuscular facilitation techniques before the daily routine workouts. ANOVA for repeated measures indicated that 7 of 8 strength and all 5 flexibility tests showed $p < .05$ with the differences usually occurring between the first 4 test sessions (preseason) and plateaus occurring during the regular season. Only hip flexion had $p > .05$. ANOVA indicated $p > .05$ when the different events were compared. The mean somatotype was 1.4–5.0–2.8. Profile analysis indicated that strength and performance had similar tendencies. A high positive r existed among the strength measures with 25 of 28 r's being significant ($p < .05$) and between strength and mesomorphy. Strength was negatively related to performance, flexibility, endomorphy, and ectomorphy. No significant relationships existed among the flexibility measures, between somatotype and performance, and between flexibility and performance, endomorphy, and mesomorphy. Two other group of *S*s showed comparable strength and flexibility gains although not compared statistically.

533. SPRUSTON, Nelson T. A. *Research reading habits of physical educators.* M.S. in Physical Education, 1973, 117 p. (L. R. Geser)
Physical educators in southwestern British Columbia ($N = 453$) were surveyed to determine the amount of time spent each month for research reading. A response of 88.3% was received. Results showed 66.6% of the *S*s spend less than 30 min/mo reading research. Certain factors were found to be significantly related to research reading habits: sex of respondents, position of the respondents, completion of courses in research methods and statistics, number of hr spent coaching, and membership in certain professional organizations. Factors not significantly related to research reading habits include: age, yr of teaching experience, level of education, and type of community served. Also studied were reasons for not reading research material, attitudes of the respondents toward research, sources for methodology change, most popular periodicals, and suggestions for the dissemination of research information.

534. STARK, Dale L. *Progressive resistance exercise for the cerebral palsied child (spastic diplegic).* M.S. in Physical Education, 1974, 55 p. (E. P. Wooten)
*S*s from the Holladay Center for Physically Handicapped Children in Portland, Oregon, were given an initial and final test on the time required to climb 6 steps, the time required to stand up, and right and left knee extension strength on the cable-tensiometer. For 8 wk between tests the *S*s were involved in a progressive resistance exercise program directed at increasing knee extension strength. Workouts were conducted 3 times/wk using a modified Lundsford knee extension machine. The final series of tests indicated that there was no significant change on any test item ($p > .05$).

535. STUDEBAKER, Gary W. *The effects of a program of fixation upon motor performance of cerebral palsied children.* D.Ed. in Physical Education, 1974, 106 p. (E. P. Wooten)
Motor performance of 6 case studies, early childhood, cerebral palsied *S*s was tested in a 10-wk motor development program emphasizing fixation on a stationary dowel rod with 1 hand while manipulating an object with the other hand. One activity was prescribed for each *S* from the following: grasping and taking a dowel rod; grasping, taking, and releasing a dowel rod; and throwing a ball. Pretest and posttest evaluations were made by 3 experts via audiovisual recordings as the investigator encouraged the individual *S*s to perform. The ANOVA showed: a significant difference between pretest and posttest scores of all *S*s in favor of improved motor performance, no significant differences in the ratings of the judges at both evaluations, and no significant interaction between pretest and posttest treatments and judges' ratings.

536. SVETICH, Danny R. *A comparison of the effectiveness of two practice methods on learning a gross motor skill (the overarm throw) by first, second, and third grade girls.* M.S. in Physical Education, 1974, 34 p. (J. D. Adler)

537. TREBLE, Gordon F. *Differences in learning, concept development and retention between students instructed with behavioral objectives and students instructed without behavioral objectives.* Ed.D. in Physical Education, 1974, 22 p. (E. P. Wooten)

College *Ss* ($N = 74$) formed 2 anatomy laboratory groups, 1 of whose instruction was supplemented with behavioral objectives. Following 4 wk of instruction, both groups were given a laboratory examination to determine whether learning differences existed. In the same week a theory examined determined the *Ss*' development of anatomical concepts. No significant difference was found between the groups in terms of learning, but a difference, ($p < .05$), was revealed in the development of concepts. To determine whether retention was favored by either group, the laboratory examination was repeated on 2 later occasions. While no significant difference was revealed in retention after a 2-wk period, a significant difference ($p < .05$) favoring the group whose instruction was supplemented with behavioral objectives did occur in retention 4 wk after the learning scores were obtained. ANCOVA was the statistical tool employed to determine whether significant differences occurred between the 2 groups' *X* retention scores.

UNIVERSITY OF SOUTHERN MISSISSIPPI, HATTIESBURG, MISSISSIPPI (Walter Cooper)

538. LANCE, James. *An investigation of the comparative effects of distance hitting of aluminum and wood baseball bats.* 1974. (B. Slay)

Three wood Youth League approved baseball bats of 28", 29", and 30" and 3 aluminum Youth League approved baseball bats of 28", 29", and 30" were tested for difference in distance hitting. Forty-five volunteer Youth League baseball players (ages 8–9) and a springloaded baseball bat swing machine designed and built by the author were used to test the 6 bats. A batting tee was used for all hits. The 3 wood baseball bats had a significantly greater hitting distance than the three aluminum bats as tested by the *Ss* and the bat swing machine ($p < .01$). A 1-way ANOVA was computed for the *X*s by the bat swing machine and the treatment of the data for the *Ss* was an ANOVAR Multiple Trials Design as formulated according to the Veldman System.

UNIVERSITY OF UTAH, SALT LAKE CITY, UTAH (Robert O. Ruhling)

539. AVANT, James L., Jr. *An evaluation of intramural programs for men in selected colleges and universities.* Ph.D. in Leisure Studies, 1974, 261 p. (L. R. Rockwood)

540. BESTMANN, Lawrence P. *An evaluation of the boys' physical education programs in the Anaheim Union High School District, Anaheim, California.* Ph.D. in Physical Education, 1974, 370 p. (L. E. Griffin)

541. BLY, Wallace. *An analysis of the state services for the support of public recreation in Louisiana.* Ed.D. in Leisure Studies, 1974, 161 p. (L. R. Rockwood)

542. BRAZA, Gerald F. *A comparison of experiential and classroom learning models in teaching health problems of the poor.* Ph.D. in Health Science, 1974, 144 p. (M. W. Kreuter)

543. BUSUTTIL, Charles P. *The effects of an active related warm-up bout on selected physiological parameters.* M.S. in Physical Education, 1974, 92 p. (R. O. Ruhling)

544. BUTTON, Sherman G. *Investigation of leg density changes of college age females comparing a low resistance—low repetition exercise program to a high resistance—high repetition exercise program.* Ph.D. in Physical Education, 1974, 107 p. (K. P. Henschen)

545. CAPPEL, Lawrence W. *An epidemiological assessment of untreated psychiatric impairment in Salt Lake County.* Ph.D. in Health Science, 1974, 173 p. (M. W. Kreuter)

546. CLAY, John. *Personality traits of female intercollegiate athletes and female intercollegiate athletic coaches.* Ph.D. in Physical Education, 1974, 114 p. (K. P. Henschen)

547. DIGNAN, Mark. *Community factors associated with participation in immunization programs.* M.S. in Health Science, 1974, 44 p. (R. B. Dwore)

548. DONKHORST, Jane. *Cohesion in girls' basketball teams in the Davis School District.* M.S. in Physical Education, 1973, 57 p. (B. H. West)

549. DRISCOL, Janet V. *Personality traits of women physical educators at the university level.* M.S. in physical education, 1974, 77 p. (K. P. Henschen)

550. FRANK, Omer V. *An evaluation of pupil transportation programs in Utah.* Ph.D. in Physical Education, 1974, 111 p. (O. N. Hunter)

551. FRIES, Jeffrey E. *The development and application of a personality instrument designed for recruiting collegiate football players.* Ph.D. in Physical Education, 1974, 79 p. (K. P. Henschen)

552. GUSHIKEN, Thomas T. *The effect of five motive-incentive conditions selected physical performance activities on mentally retarded students.* Ph.D. in Physical Education, 1974, 95 p. (J. R. Ewers)

553. HARMAN, Stephen Karl. *A comparison of lecture and experiential learning models in teaching human ecology.* Ph.D. in the Health Science, 1973, 158 p. (M. W. Kreuter)

554. HART, Elizabeth Kaye. *A comparative study of personality traits related to attitudes toward physical activity as expressed by university women.* Ph.D. in Physical Education, 1974, 136 p. (L. E. Griffin)

555. HUDSON, Susan Diane. *George Hjelte recreation administrator.* Ph.D. in Leisure Studies, 1974, 230 p. (L. R. Rockwood)

556. HUGHES, Robert J. *Perception of administrative staffs in selected secondary schools.* Ph.D. in Physical Education, 1973, 164 p. (O. N. Hunter)

557. HUNTER, Michael N. *A comparison of Mexican-American and Caucasian male juvenile detainees.* Ph.D. in Physical Education, 1973, 95 p. (L. E. Griffin)

558. INCIONG, Philip Alexander. *Leadership styles and team success.* Ph.D. in Physical Education, 1974, 120 p. (K. P. Henschen)

559. JOHNSON, Dale. *A relationship of selected biological rhythms to football injuries.* Ph.D. in Physical Education, 1974, 117 p. (K. P. Henschen)

560. KELSEY, Craig W. *Therapeutic recreation and self-concepts of selected psychiatric patients.* M.S. in Leisure Studies, 1973, 39 p. (J. M. Moran)

561. LEAF, Carol Ann. *History of the American Academy of Physical Education 1950–1970.* Ph.D. in Physical Education, 1974, 399 p. (N. P. Neilson)

562. LEAKE, Robert. *Knowledge about, attitudes toward, and use or non-use of drugs by Utah secondary school students.* Ed.D. in Physical Education, 1974, 625 p. (O. N. Hunter)

563. LOUGHTON, Spencer Jackson. *The effects of anabolic steroid on selected physiological parameters of trained and untrained men.* Ph.D. in Physical Education, 1974, 121 p. (R. O. Ruhling)

564. MICHALEK, Frank H. *Selected measures as predictors of success in gymnastics.* Ph.D. in Physical Education, 1974, 99 p. (R. O. Ruhling)

565. OSBORNE, Betty Jean. *The attrition rate of coronary care nurses in the intermountain region.* M.S. in Health Science, 1974, 69 p. (M. Kreuter)

566. PAVLISKO, Jon J. *Effects of moderate altitude and weight loss on exercise performance and hemoglobin concentration in adult males.* Ph.D. in Physical Education, 1974, 110 p. (R. O. Ruhling)

567. PEARCE, Janice. *Knowledge about, attitudes toward, and use or non-use of drugs by Utah secondary school students.* Ph.D. in Health Science, 1974, 625 p. (O. N. Hunter)

568. RAFFAELLI, Larry Lee. *Ethnic group non-participation in interscholastic athletics.* M.S. in Physical Education, 1974, 70 p. (O. N. Hunter)

569. ROBISON, John Lee. *A comparative study of high school coaches' personality assessment ability and players' actual traits.* M.S. in Physical Education, 1974, 54 p. (K. P. Henschen)

570. ROWLANDS, David James. *A golf skills test battery.* Ph.D. in Physical Education, 1974, 87 p. (J. R. Ewers)

571. SMITH, Owen R. *A comparison of three methods of teaching skeet shooting.* Ph.D. in Leisure Studies, 1974, 96 p. (J. R. Ewers)

572. SMITH, Samuel Harold. *Practitioners' evaluation of college courses, competencies and functions in therapeutic recreation.* Ph.D. in Leisure Studies, 1974, 189 p. (L. E. Griffin)

573. SOMMERS, Shirley. *A comparison between junior high girls of different levels of fitness on selected personality traits.* M.S. in Physical Education, 1973, 65 p. (L. E. Griffin)

574. STALLARD, Mary L. *Female intercollegiate basketball players' perceptions of their coaches.* Ph.D. in Physical Education, 1974, 105 p. (K. P. Henschen)

575. TIMMER, James R. *Effects of breathing oxygen enriched air on muscular endurance, muscular strength, muscular power, reaction time and movement time at moderate altitude.* Ph.D. in Physical Education, 1974, 180 p. (R. O. Ruhling)

576. TREU, Lawrence Leo. *A survey to determine the duties of a supervisor of basketball officials.* Ph.D. in Physical Education, 1974, 147 p. (L. E. Griffin)

577. TRIMMER, James Richard. *Influence of selected wrestling coaches' personalities on the personality and self-concept of varsity wrestlers at the university level.* Ph.D. in Physical Education, 1974, 128 p. (K. P. Henschen)

UNIVERSITY OF WASHINGTON, SEATTLE, WASHINGTON

(T. L. Doolittle)

578. ADAMS, Marjorie A. *A comparison of the Alpern-Boll Developmental Profile and the Stott Test of Motor Impairment in a selected population.* M.S., 1974, 77 p. (M. Woods)

Two recent assessment instruments, the Alpern-Boll Developmental Profile and the Stott Test of Motor Impairment, were compared as to sensitivity and agreement between the 2 instruments in

identification of children with delayed motor development. Six girls and 4 boys, ages 5–9, comprised the sample. Of the 10, 7 of the children had been identified by the Seattle school system as neurologically impaired, whereas 3 were from regular classes. Four of the 7 from the neurologically impaired group were identified by the ABDP as delayed in motor development, whereas the STMI identified 6. All normal children were so identified by both instruments. The null hypothesis stating no agreement between the 2 instruments was rejected at .004 level. In addition the hypothesis stating the ABDP would not be sensitive as an identification instrument was rejected. Test, retest r of STMI was .78; therefore, the hypothesis stating no agreement between trials was rejected at the .0004 level. The investigator concluded the Stott Test of Motor Impairment to be the more efficient instrument for identifying delayed motor development in the school-defined neurologically impaired selected sample.

UNIVERSITY OF WESTERN ONTARIO, LONDON, ONTARIO, CANADA

(F. J. Hayden)

579. ADAMS, Lorne. *The effects of extended practice and increasing the difficulty of a secondary motor task upon performance of a gross muscle skill.* M.A. in Physical Education, 1974, 90 p. (J. Richardson)

580. BATES, Robert Douglas. *The effects of an exercise program on the on-ice total body reaction time and movement speed of ice hockey players.* M.A. in Physical Education, 1970, 98 p. (W. J. l'Heureux)

581. BLACKWELL, John. *The effect of various rest intervals during interval training on cardio-respiratory fitness.* M.A. in Physical Education, 1973, 63 p. (R. Eynon)

582. DEMERIEZ, Bert. *The effects of three varied conditions of practice on the performance of an unfamiliar gymnastic skill.* M.A. in Physical Education, 1970, 127 p. (J. R. Richardson)

583. DENNIS, H. Peter. *Expectations of role exemption due to illness or injury of high school age boys as a function of participation in athletics.* M.A. in Physical Education, 1972, 80 p. (G. Wearring)

584. DINNING, Michael. *The role of the government of Canada and the province of Ontario in the implementation of the fitness and amateur sport act, 1961–1974.* M.A. in Physical Education, 1974, 185 p. (D. Semotiuk)

585. GIBBINS, Jack. *The effect of swimming training on selected aspects of the pulmonary function of young girls.* M.A. in Physical Education, 1971, 104 p. (D. A. Cunningham)

586. GOODE, Paul B. *Comparison of maximal oxygen uptake as measured on the rowing ergometer and bicycle ergometer.* M.A. in Physical Education, 1972, 55 p. (D. Cunningham)

587. GRAHAM, Robert. *The comparative energy expenditure of drownproofing and treading water.* M.A. in Physical Education, 1974, 163 p. (R. Eynon)

588. GREGORY, Catherine Jane. *Superstitions among male and female intercollegiate athletes and non-athletes at the University of Western Ontario, 1971–1972.* M.A. in Physical Education, 1973, 179 p. (B. Petrie)

589. HAGERTY, Harvie. *The relationship between objectives of the instructional intramural and interscholastic programs of five selected Oshawa secondary schools.* M.A. in Physical Education, 1974, 843 p. (G. Paton)

590. HAGGERTY, Terry. *An analysis of the physical education supplies and capital, budgetary decision-making processes in an Ontario secondary school system.* M.A. in Physical Education, 1973, 162 p. (G. Paton)

591. HARDING, James P. *The effects of instructions, practice and secondary task load on the learning of a large muscle coordination task.* M.A. in Physical Education, 1973, 83 p. (J. Richardson)

592. HARVEY, Gerard. *The ranking of objectives by Ontario physical educators for the core, intramural and interscholastic programs.* M.A. in Physical Education, 1974, 101 p. (G. Paton)

593. HIGGS, James. *Anxiety as a function of participation in boy's minor league hockey.* M.A. in Physical Education, 1974, 82 p. (T. Orlick)

594. LEITH, Larry. *Filmed sport models and aggressive predispositions in the young audience.* M.A. in Physical Education, 1973, 77 p. (T. Orlick)

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596. LOCKE, Donald. *A comparison of the aggressive tendencies of male athletes in two competitive sports.* M.A. in Physical Education, 1973, 112 p. (J. Richardson)

597. LUMLEY, Mary. *Achievement motivation and leader behavior of physical education administrators.* M.A. in Physical Education, 1971, 113 p. (G. A. Paton)

598. MALONEY, Timothy Lawrence. *Attitudes toward playing a game and the sport involvement of school age adolescents.* M.A. in Physical Education, 1970, 118 p. (B. M. Petrie)

599. MARTIN, Susan. *Body awareness and motor ability.* M.A. in Physical Education, 1971, 98 p. (J. P. Richardson)

600. McMILLAN, Eldon. *A comparison of the motor skill learning abilities of normal and emotionally disturbed children.* M.A. in Physical Education, 1970, 53 p. (J. R. Richardson)

601. MEIER, Klaus. *An existential analysis of play.* M.A. in Physical Education, 1971, 195 p. (J. Fairs)

602. MORGAN, Christopher. *An investigation of daily energy expenditure, determined by heart rate monitoring of post myocardial infarct males before and after a graduated exercise program.* M.A. in Physical Education, 1971, 216 p. (M. S. Yuhasz)

603. MORROW, Don. *A historical study of the development of the intramural sports program at The University of Western Ontario 1878–1972.* M.A. in Physical Education, 1972, 288 p. (D. Semotiuk)

604. MOXLEY, Susan. *The effect of type of movement, retention, interval and interpolated activity on short-term kinesthetic memory.* M.A. in Physical Education, 1971, 53 p. (J. R. Richardson)

605. NESS, Gary W. *Cardio-pulmonary function in prospective competitive swimmers and their parents.* M.A. in Physical Education, 1972, 166 p. (D. Cunningham)

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607. PATERSON, Donald H. *Methods for the calculation of cardiac output from the indirect (CO_2) Fick technique in different populations*. M.A. in Physical Education, 1972, 138 p. (D. Cunningham)

608. PIRIE, Lynn. *The somatotype of hockey players*. M.A. in Physical Education, 1974, 122 p. (D. Milne)

609. RAMSAY, Janice Carole. *Learning a gross motor skill under two conditions of visual feedback*. M.A. in Physical Education, 1970, 75 p. (J. R. Richardson)

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611. RITCHIE, Judith. *Motor skill learning, performance and response consistency under two levels of information feedback*. M.A. in Physical Education, 1974, 70 p. (J. Richardson)

612. SALE, Digby G. *A cinematographical and mechanical analysis of the shoot-to-handstand performed on the rings*. M.A. in Physical Education, 1972, 127 p. (M. Yuhasz)

613. SALMELA, John Henry. *Dynamic balance at three levels of inclination*. M.A. in Physical Education, 1970, 84 p. (J. R. Richardson)

614. SIDNEY, Kenneth H. *The effect of frequency of exercise upon physical work performance and selected variables representative of cardio-respiratory fitness*. M.A. in Physical Education, 1970, 115 p. (R. B. Eynon)

615. TELFORD, Peter. *The cardio-respiratory capacity of ten-year-old boys engaged in competitive ice hockey*. M.A. in Physical Education, 1973, 88 p. (D. Cunningham)

616. THOMPSON, Larry. *The importance of the physical educator as a "significant other" among fourth year secondary school students*. M.A. in Physical Education, 1973, 157 p. (B. Petrie)

617. THOMPSON, Melvine. *An analysis of financial practices in secondary school physical education departments in Ontario*. M.A. in Physical Education, 1974, 158 p. (G. Paton)

618. THOMSON, William G. *Comparison of selected soccer teaching methods with elementary school children*. M.A. in Physical Education, 1972, 53 p. (C. Milne)

619. WALKER, Dennis. *Strength training and human knee stability*. M.A. in Physical Education, 1974, 142 p. (M. Yuhasz)

620. WATKINSON, Elizabeth Jane. *Skill learning by normal and learning disabled children under 2 conditions of feedback*. M.A. in Physical Education, 1971, 60 p. (J. R. Richardson)

621. WILLIS, Eric T. *Male-female differences in the cardio-respiratory response to training at selected intensities*. M.A. in Physical Education, 1973, 61 p. (R. Eynon)

622. WILSON, Paul. *Response strategy development in stabilometer performance of educable mentally retarded boys*. M.A. in Physical Education, 1971, 95 p. (J. R. Richardson)

UNIVERSITY OF WISCONSIN, MADISON, WISCONSIN

(J. G. Wolf)

623. ARNETT, Andrew James. *The influence of contingent reinforcement on heart rate during exercise.* M.S. in Physical Education, 1974, 116 p. (W. P. Morgan)
During the final 10 min of a 25-min period of constant work at 450 kpm on a bicycle ergometer *S*s received positive reinforcement (auditory tone) for producing appropriate changes in HR. Volunteer *S*s ($N = 15$) were assigned to 3 groups: Group I received reinforcement whenever HR exceeded a preestablished "base-level" by 5% or more; group II received reinforcement whenever HR was suppressed 5% or more below a preestablished "base-level"; group III acted as controls receiving reinforcement in accordance with a prescribed schedule. The $\bar{x}$ HR during the 10 min of treatment was compared to the $\bar{x}$ HR of the 3 min preceding the treatment. *S*s underwent 4 sessions on consecutive days. Mean difference scores for the total 40 min of treatment were: Group I + 1.81 bpm; group II - 3.33 bpm; group III −1.19 bpm. ANOVA revealed the difference between groups I and II to be statistically significant ($p < .05$).

624. BAIN, Linda Lee. *Description and analysis of the hidden curriculum in physical education.* Ph.D. in Physical Education, 1974, 183 p. (A. E. Jewett)
The hidden curriculum was defined as values implicitly represented in the educational environment. The investigation described values implicit in secondary school PE classes and tested hypotheses concerning differences between male and female classes and urban and suburban classes. The Implicit Values Instrument for Physical Education (IVI–PE), constructed to collect data for this study, consisted of 3 subsections: observation of teacher verbal behavior, observation of class organization, and a questionnaire concerning procedural regulations. The instrument produced scores on 6 value dimensions: achievement, autonomy, orderliness, privacy, specificity, and universalism. Although predicted differences were generally not verified, ANOVA revealed significant differences between the groups. Female classes scored higher than male classes on the privacy dimension, the difference being greater in urban schools than in suburban schools. Female classes also tended to score higher on specificity, and female teachers made a larger number of verbal comments per class period. Urban classes scored higher than suburban classes on the universalism dimension, and suburban classes tended to allow greater student autonomy.

625. BLASER, Bonnie Jean. *The construct of joy of movement as reflected through seventh graders' enjoyment of movement tasks.* M.S. in Physical Education, 1974, 88 p. (A. E. Jewett)
The purpose of this study was to identify movements which are most enjoyable and qualities which make movement pleasurable. Running, jumping, and object manipulation movements were hypothesized most enjoyable movements while suspended, explosive, rotating, extraordinary, and free were hypothesized qualities. Three assessment tools (semantic differential (SD), ranking the most enjoyed tasks, and ratings of pleasure displaced) were designed to examine the level of enjoyment created by performance of 20 motor tasks representing hypothesized qualities and their opposites. Males ($N = 13$) and females ($N = 13$) 7th graders at Jerstad-Agerholm Junior High School in Racine, Wisconsin, were the *S*s of the exp. ANOVA split-plot design was used to analyze SD data; descriptive statistics were used for other tools. It was found that tasks involving the use of equipment are more enjoyable than other tasks, explosive tasks are more enjoyable than pulsating tasks, suspended tasks are more enjoyable than earthbound tasks, free tasks are more enjoyable than inhibited tasks, extraordinary tasks are more enjoyable than customary tasks, rotating movements are *not* more enjoyable than nonrotating movements, running or jumping tasks are *not* more enjoyable than other tasks. Significant differences do *not* exist between enjoyment of tasks by males and by females.

626. CHAPMAN, Peggy Ann. *Evaluation of affective responses of students to a selected list of purposes for human movement.* Ph.D. in Physical Education, 1974, 171 p. (A. E. Jewett)
The affective responses of students to the purposes for human movement as identified in the Purpose Process Curriculum Framework were evaluated. Specifically, the investigation was conducted to determine if some purposes were valued higher than others, if males and females differed in the perceived value associated with each purpose. Males ($N = 70$) and females ($N = 70$) were randomly selected from each grade level from among all students enrolled in schools in 1 of 4

attendance areas in a large midwestern school district. All *S*s responded to the Movement Purposes Attitude Inventory which contained each of the purpose statements followed by 8 bipolar semantic differential scales on which the direction and intensity of reaction to the purposes were indicated. The inventory measured 2 dimensions of attitude, likability, and utility and yielded a score for each dimension. The results were analyzed using ANOVA. Simultaneous linear equations were used to test differences between combinations of interest. Conclusions: affective responses to the purposes were favorable, some purposes for moving were valued more highly than others, females valued moving for the purpose of clarification more highly than males, grades 7 and 11 valued the purposes more highly than grade 9, and ratings on the utility dimension were slightly higher than on the likability dimension.

627. COWLES, James H. *An analysis of factors common to most successful putting styles in golf.* M.S. in Physical Education, 1974, 184 p. (J. G. Wolf)

Eleven highly skilled golfers, 9 men and 2 women, volunteered to participate in the study. Each *S* was given a putting skill test, filmed, given an alignment test, and tested on a weight board. The film analysis provided the primary source of information with the tests providing supplementary data. Sixteen factors were selected for evaluation. Similarities were noticed in the backswing, the putter displacement, the eye-to-ball relationship, and the point of weight concentration.

628. ERKAN, Necmettin. *Hypoxia-exercise stress for the assessment of coronary arterial disease.* Ph.D. in Physical Education, 1974, 156 p. (F. J. Nagle)

Middle-aged *S*s ($N = 39$) who participate in preventive or therapeutic cardiac exercise programs at the University of Wisconsin were selected on a voluntary basis. The *S*s ranged from severely diseased postcoronary patients to presumed normals who exercised at different levels of exertion. All *S*s had performed a maximal treadmill exercise test (MTET). A new diagnostic test, hypoxia-exercise stress test (HEST), and its equivalent submaximal ormoxia tests were given to each *S* with 15-min rest period in between. The HEST was conducted on a bicycle ergometer and included 4-min warmup, 5-min rebreathing from a 66.6-liter respirometer, 4-min steady hypoxic exercise at 10.5% O_2 in the inspired air, and 4-min active recovery under room air conditions. The workload was kept at 450 kpm/min except for the last 2 min of the steady hypoxia where it was elevated to 600 kpm/min for the *S*s who could tolerate the test at this stage. At rest a standard supine EKG, respiratory measurements, diffusion capacity, and blood hemoglobin were measured. During the tests, electrocardiograms, HR, blood pressures, end-tidal O_2 and CO_2, ventilation max VO_2, and diffusing capacity were determined. When the EKG impressions of the *S*s taken during both of the diagnostic tests were compared, it was found that 12 *S*s of 19 showed "ischemic" and 4 *S*s showed "borderline" changes in both tests. One *S* diagnosed "ischemic" on the MTET was judged "borderline" in the HEST, 1 *S* judged "ischemic" in the HEST was "near ischemic" on the MTET, and 1 *S* judged "ischemic" in the HEST was found to be "borderline" on the MTET. Coronary cineangiogram records of the postcoronary patients and the level of ischemic EKG responses were compared and did not show any apparent pattern of relationship. The submaximal hypoxia-exercise stress test (HEST) used in this research was found to have as high a diagnostic accuracy as the maximum treadmill exercise test (MTET).

629. FOTSCH, Estelle M. *Innovation in girls physical education at New Trier Township High School, Winnetka, Illinois, 1930–60.* Ph.D. in Physical Education, 1974, 228 p. (A. E. Jewett)

A descriptive account of New Trier Township and the origin and development of New Trier Township High School were given. The years 1930–60 were examined by decades and their relationships to historical periods were indicated. Several sources were used to compile a list of innovations and to formulate an opinionnaire. These were sent to former students, staff, administrators, and school board members to solicit their views on innovation in girls PE. Results represented 4 categories—curriculum, department faculty pursuits, special events, and GAA. In-depth examination of these was made through personal interviews. Hypotheses were supported by the data except for 2 subpoints. On 1 of these data were not available. Personal interviews revealed that parents, community, and administrators supported the programs of PE for girls and that the department head was named most often as instigator of innovation.

630. FRY, Karen Louise. *A computer-based simulation for physical education curriculum planning*. Ph.D. in Physical Education, 1974, 143 p. (A. E. Jewett)

The major problem was to develop a PLATO program for planning a PE program originating from a purpose-oriented conceptual base and resulting in a design of learning activities appropriate to the conditions imposed by the simulation. Development of the program included: selection of the operational base and instructional logic; development of the situation, participant role, and problem-solving tasks for the simulation; and selection of variables to monitor which provided both a description of decision-making moves and feedback for the continued improvement of the program. After preliminary pilot testing of 20 *S*s, 5 undergraduate women in PE volunteered to participate in the final testing program. Descriptive analysis of student data resulted in the following conclusions: student participation in the program resulted in the development of acceptable PE curriculum designs for the simulated school situation by 4 of the 5 *S*s, the Physical Education Curriculum Planning (PECP) program collected sufficient data to allow identification of a variety of quantitative and qualitative similarities and differences among students in the decision-making process, and the model represented by the PECP program was a feasible approach to teaching PE curriculum planning.

631. GREENDORFER, Susan L. *The nature of female socialization into sport: A study of selected college women's sport participation*. Ph.D. in Physical Education, 1974, 314 p. (M. R. Sloan)

A sport socialization model, previously used on male athletes, served as a basis from which several hypotheses could be generated. The 6 hypotheses were considered in reference to the following concepts pertaining to the social learning model: agents of socialization, socializing situation or opportunity set, and socioeconomic status and sport types. Each of these concepts was examined relative to its influence and importance in the sport socialization process. A fixed-alternative questionnaire was administered to women who participated in the Wisconsin Women's Intercollegiate Athletic Conference ($N = 585$). The data obtained from these questionnaires were subjected to statistical analyses appropriate to the specific hypothesis under examination. Conclusions: peers play the most important role in the female sport socialization process throughout the life cycle; family is an encouraging agent during childhood but becomes less influential in adulthood; the school is important during adolescence only; male role models provide a more dominant influence than female role models, especially when athletes are considered; age of 1st sport involvement is a function of reference groups but not opportunity set; sport type is a function of social class; and there is no relationship between sport type and type of reference group influence (e.g., family vs. peers).

632. HAGBERG, James. *The O_2 uptake response at the initiation of exercise*. M.S. in Physical Education, 1974, 76 p. (F. J. Nagle)

The purpose of the study was to determine if the half-time to a steady state in O_2 consumption was independent of the workload and if the half-time differed between trained and untrained *S*s at absolute and relative workloads. Two groups, 1 trained (mean max $\dot{V}O_2 = 70.2$ ml/kg/min) and 1 untrained (mean max $\dot{V}O_2 = 49.7$ ml/kg/min) were tested in 143-min exercise bouts at equal relative and absolute workloads on a Schwinn ergometer. The workloads were determined individually for each *S* to approximate 25%, 33%, 40%, 50%, and 70% of his max $\dot{V}O_2$. An on-line computer system was used to compute the *S*s' $\dot{V}O_2$ on a breath-by-breath basis. The half-time to steady state in O_2 uptake at the initiation of exercise increased across the absolute and relative workloads tested. The half-times differed between the 2 groups at equal absolute workloads with the trained *S*s attaining steady state more rapidly. When compared at the same relative workloads, there were no differences between the groups but the same trends existed as seen at the absolute workloads. The lower O_2 deficit for the trained *S*s offers a possible explanation for the lower lactic acid accumulation exhibited by trained *S*s. A possible cause of the observed differences may be found in the enzyme kinetics which are affected by the increased aerobic enzyme levels seen in trained *S*s.

633. HARRINGTON, Wilma M. *Feedback diversity in teaching physical education*. Ph.D. in Physical Education, 1974, 189 p. (A. E. Jewett)

The Feedback Diversity Classification System was developed to record the occurrence of the elements of content, intent, and form in PE classes, grades 6 through 9. Four PE specialists were trained and divided into 2 teams to use the instrument. They observed 5 teachers each on 3

consecutive occasions. The data from these observations were analyzed descriptively and by ANOVA. The results demonstrated that teachers most often indicated that students were patterning or refining movement. The feedback provided was predominantly verbal in form. The intent of the feedback was prescriptive in most instances. When all 3 categories were compared for concurrent occurrences, it was shown that teachers verbally prescribed for successive movement and the processes indicated were most often patterning and refining. The Feedback Diversity Classification System was found to be generalizable across observers, over occasions, and within situations.

634. HASSELKUS, Betty R. *Variations in postural sway related to aging in women.* M.S. in Physical Education, 1974, 72 p. (G. M. Shambes)

Postural sway was measured on a center of gravity platform using 2 age groups of female *S*s 20–30 yr old and 70–80 yr old. The 10 *S*s in each group were given 3 18-sec trials in each stance position. Synchronized biplane photographs were taken of the scales at 1-sec intervals. Data included the area of sway, maximal excursions of the sway points, the location of the $\bar{x}$ center of gravity and its relationship to the geometric center of the base, and the distance of the $\bar{x}$ center of gravity from the talo-tibial axis of rotation. The difference in postural sway between age groups was statistically significant with the older adults demonstrating larger sway areas. The center of gravity excursions tended to be similar in both planes except in the young adults upright position where the A–P excursion was larger than the medial-lateral. The location of the $\bar{x}$ center of gravity was most often posterior and to the left of the geometric center of the base. The distance between the 2 points was least in the older adults forward lean position, i.e., the exp. unit which demonstrated the largest area of postural sway.

635. HOHLSTEIN, Rita R. *The development of prehension in normal infants.* M.S. in Physical Education, 1974, (G. M. Shambes)

636. JAMES, Robert J. *Multivariate analysis of the walking behavior in institutional Down's syndrome males.* Ph.D. in Physical Education, 1974, 188 p. (J. G. Wolf)

The purpose of this study was to provide information on the walking behavior of Down's syndrome institutionalized males between the ages of 3 and 20 yr. Walking patterns of these males were compared to walking patterns of familial non-Down's retardates and normals of the same age range. Walking cycle information was generated from moving films and kinetographs. Multivariate analysis procedures were used for treatment of the data. Growth, development, temporal, and spatial components were found to be important in describing walking behavior. Multivariate ANOVA was conducted on the *S*s' scores of the variables associated with that behavior. It was evident that the Down's differed substantially from the familials and normals in walking behavior. Both main effects and the interaction for groups and age range were significant ($p < .001$). Discriminant functions associated with each of the significant latent roots were also computed.

637. KASSON, Peter L. *Teaching and coaching behaviors of university physical educators.* Ph.D. in Physical Education, 1974, 143 p. (A. E. Jewett)

The Mancuso Adaptation for Verbal and Nonverbal Behavior, with minor modifications, was selected as the recording instrument for 3 judges. The Scott (1955) Phi Correlation Method for determining interjudge reliability coefficients was used. Videotape recorded the behavior of 3 physical educators who taught the advanced level activity class in wrestling, baseball and gymnastics and were varsity coaches of the same activities. Behavioral observations ($N = 21{,}600$) were categorized from 3 hr of teaching and 3 hr of coaching. The χ^2 test was administered to compare frequencies in direct-indirect behavior and verbal-nonverbal behavior. A lambda, a measure of predictive association, was also administered to detect any significant differences among individual *S*s. Athletic coaches were not more direct in the coaching of athletes than in the teaching of physical education students; 56% of coaching behavior in athletic practice sessions was direct as compared to 69% of teacher behavior in PE settings. In both environments there was more direct than indirect behavior.

638. KORRELL, Diane M. *Effects of experimenter sex and hostility level on Game Sense Test scores.* M.S. in Physical Education, 1974, 103 p. (M. J. Safrit)
The Game Sense Test, a series of 10 subtests, is designed to measure level of sport cognition, defined as cognitive skills that appear to contribute to success in sport. Two E's, 1 male and 1 female, portrayed 2 levels of hostility, high and low, to an equal number of male and female *S*s. College students ($N = 72$) who were enrolled in general PE classes at the University of Wisconsin were used as *S*s and were tested on a 1–1 basis. The results of this study indicated that a male E elicited significantly higher sport cognition scores through performance on the Game Sense Test than a female E. *S*s under a low level of hostility portrayed by both Es performed significantly better than *S*s under a high level of hostility. The main effects of E's sex and hostility level were the only significant differences reported. All other sources of variance were not significant. This implies that the Es should be aware of their behavior before and while giving the Game Sense Test so that *S*s can elicit their best performance without any distractions or biases.

639. NOMURA, Takeo O. *The relationship of age to pulmonary function in trained swimmers at rest and during exercise.* M.S. in Physical Education, 1974, 138 p. (W. G. Reddan)
The effect of long-term swimming training on anthropometry and cardiopulmonary function at rest and during tethered swimming and treadmill walking was studied cross sectionally in trained swimmers 8–23 yr ($N = 29$) during their competitive season. Lung vol., flow rates, and pulmonary diffusing capacity were studied at rest. During a progressive work test to the level of max volitional effort in treadmill walking and during tethered swimming, submaximal and max work measurements included O_2 consumption, ventilation, HR, pulmonary diffusing capacity for CO and its components, and venous lactate. The trained swimmers were taller and heavier at any age level and exhibited higher than predicted lung volumes and pulmonary diffusing capacity at rest. Absolute max $\dot{V}O_2$ increased with age and in both treadmill and tethered swimming but not when related/kg. Max $\dot{V}O_2$ did not differ between treadmill and swimming exercise. A higher diffusing capacity was observed during swimming than treadmill walking because of a larger pulmonary capillary vol. The higher values found in the trained swimmer do not appear the result of swim training since these differences were present even at the youngest age. Crawl swimming does not limit O_2 exchange as max $\dot{V}O_2$ was comparable to that of treadmill walking.

640. PURVIS, Jamie W. *The interaction of anxiety and physical work capacity.* M.S. in Physical Education, 1974, 64 p. (W. P. Morgan)
College aged females ($N = 30$) were given the Spielberger State-Trait Anxiety Inventory and a physical work capacity (PWC) test on either the bicycle ergometer or treadmill across 3 days within 1 wk. The ergometer *S*s pedaled at 60 rpm and 25 W for 4 min with increases of 25 W each 4 min thereafter. The standard Balke treadmill test was employed for the treadmill group. PWC was evaluated by time in sec to a HR of 150 or 170 bpm, or a state of exhaustion (PWC_{150}, PWC_{170}, and PWC_{max}, respectively). ANOVA revealed no significant difference in PWC or anxiety across days, and significant reliability coefficients were obtained for all variables. Also, PWC and anxiety were not related. It is concluded that a single test is sufficient to obtain a reliable estimate of PWC of either a submaximal (PWC_{150}, PWC_{170}) or a maximal (PWC_{max}) nature, and this view is intended to apply to both treadmill and bicycle ergometer work.

641. RIMNAC, Vera Z. *Individualized laboratory experiences in an introductory course to professional preparation in physical education.* Ph.D. in Physical Education, 1974, 197 p. (A. E. Jewett)
The *S*s were undergraduate PE majors and minors ($N = 40$) enrolled in 2 sections of a fresh. level introductory course. The classic pre- and posttest design was used with a stratified random sample. The exp. *S*s were individually guided into laboratory experiences in the public schools and other community agencies while the controls followed a basic lecture-discussion course design during the same time. Four instruments were administered to both groups before and after the exp. period: the Fishburn Role Dimension Profile Scale; a semantic differential based upon Kinney's 6 dimensions of the teaching role; the Minnesota Teacher Attitude Inventory; and GNC Scale for determining the logical consistency of ideas about education. The data were submitted to a 2-way ANOVA with groups controlled for instructor effect. The 2 instructors were randomly

assigned to 1 of the 2 groups in each section. The analysis revealed no significant differences between the groups, but the *S*s did give 1st priority to the role mediator of the culture, as have experienced teachers and student teachers in related studies. An introduction to the analysis of the teaching role in the initial phase of professional preparation in PE may be equally effective through individualized laboratory experiences or classroom group instruction.

642. ROBINSON, Sarah M. *Visual assessment of children's gross motor patterns by adults with backgrounds in teacher education.* Ph.D. in Physical Education, 1974, 180 p. (A. E. Jewett and F. Z. Cumbee)

The purpose of the study was to explore the ability of groups differing in teacher preparation to classify into "stages" the motor performance of children executing gross motor patterns of running, throwing, and catching as presented on film. Additionally, an instructional effect of the use of a multimedia treatment on the classification task was examined. A group of PE experts ($N = 11$) was used to set the criterion score on a test film of 90 items (30 items for each activity). Three groups of *S*s were used: 2 exp. and 1 control. The exp. groups had preparation in ELE education ($N = 10$) and PE ($N = 7$); the control group ($N = 10$) had preparation in PE. Both exp. groups received multimedia instruction between the pre- and posttest. Reliability of tests was determined by *rho*. Individual test items were examined by the McNemar Test for the significance of change. The Kruskal-Wallis ANOVA by Ranks was used to analyze successful assessment scores and the magnitude of error scores. No significant differences were found. The need for more precise definition of teacher visual assessment competencies and for better visual assessment tools was discussed.

643. STAMM, Carol L. *A comparison of the power and sensitivity of the coefficient of concordance and weighted average tau for selected parameters.* Ph.D. in Physical Education, 1974, 100 p. (M. J. Safrit)

The values of m and n were selected to represent situations in PE for which test reliability and judge objectivity might be estimated. The values of α were selected to demonstrate changes in the power and sensitivity of the coefficient of concordance (W) and the weighted average tau (Wa) when the amount of error in a set of $m \times n$ rankings varied from complete agreement to random rankings. The comparisons of the power and sensitivity of W and W_a for the selected sets of parameters m, n, and α required the generation of data matrices from a uniform distribution with a range of 0 to 1. One thousand matrices were obtained for the sets of values m, n, and α where α was less than 1 and 2,000 matrices were generated for sets of values m, n, and α where α was equal to 1. The statistics, W and W_a, were computed for each matrix. The distributions of the W and W_a values for all the score matrices for a given set of parameters were plotted and the average values of W and W_a for the distributions were computed. Comparisons of the power and sensitivity of W and W_a indicated that the 2 statistics were equally powerful and sensitive for the specified sets of parameters. Neither suggested large sample approximation for W or W_a was more appropriate for all of the specified sets of parameters. Neither of the 2 statistics was judged superior for estimating the reliability of measures used in PE.

644. WEBER, Marie L. *The role of the woman high school physical education teacher as viewed by selected university and public school personnel in Wisconsin.* Ph.D. in Physical Education, 1974, 276 p. (L. E. Halverson)

*S*s ($N = 1,126$), representing 6 different subgroups, were selected from the state of Wisconsin as participants. *S*s were asked to respond, by mail, to a Teacher Competency Questionnaire which was designed to elicit the degree of importance which they attached to various teaching competencies which a woman high school physical education teacher might be expected to possess. Responses were received from 791 *S*s, a return of 70%. Data were analyzed using factor analytic techniques. Conclusions: (1) similarity in views of the role of the high school woman PE teacher occurred between: (a) freshman students and high school PE teachers, (b) senior students and university PE faculty members, (c) high school PE teachers and school principals, and (d) non-PE teachers and high school principals, and (2) the role of the woman high school PE teacher was divided into 5 subroles by all 6 groups of *S*s. A total of 14 different subroles were identified.

645. ZERNICKE, Ronald J. *Human lower extremity kinetic parameter relationships during systematic variations in resultant limb velocity.* Ph.D. in Physical Education, 1974, 650 p. (E. M. Roberts)

Cinematographic and mathematical modeling techniques were used to analyze 45 kicks of 5 skilled soccer players, who performed slow, medium, and fast velocity kicks. A force platform-validated, 3-segment, rigid body model of the lower extremity was incorporated, with kinematic data and segment mass estimates, into computer programs to analyze the selected kinetic parameters. Component joint forces were computed in terms of segmental, or local, coordinate systems instead of inertial terms. Component joint forces were calculated as forces parallel and perpendicular to the various limb segments. Results indicated that consistent, monotonic increases occurred in the selected kinetic parameters as resultant limb velocity was increased. Decreased intertrial variability was noted in force and moment curves as the velocity of the kicking limb was increased. Significant intersegmental variations occurred in the lower extremity as resultant limb velocity was systematically varied. The data further demonstrated the uniqueness of kinetic mechanisms in rapid human movement as compared to moderate or slow human motion.

WEST CHESTER STATE COLLEGE, WEST CHESTER, PENNSYLVANIA (E. Norris)

646. CONGDON, Paul D., Jr. *The effects of rhythmics, basketball, and wrestling on cardiovascular and motor fitness in fifth and sixth grade boys.* M.S. in Physical Education, 1974, 167 p. (R. Kapilian)

Three groups of 5th and 6th grade boys were given 3 wk of instruction in rhythmics, basketball, and wrestling, respectively. ANCOVA plus the Finney *t* test were used to determine significance ($p < .10$) of changes on resting diastolic blood pressure, 5-min step test, total body strength, the Illinois Agility Run, and total body RT. It was found that basketball and wrestling were more effective than rhythmics in improving total body strength and that rhythmics and wrestling were more effective than basketball in improving total body RT. There were no other significant changes.

647. ROHNER, Ronald R. *The effects of selected running programs on the cardiovascular system of college men.* M.S. in Physical Education, 1974, 81 p. (P. Donley)

Three groups of 8 college aged *S*s each were subjected to an 8-wk program of continuous running (group I), continuous and speed interval running (group II), and speed interval running (group III). A 4th group served as control. All running programs were carried out on a treadmill. ANCOVA was used to determine the significance ($p = .05$) of any changes on resting HR, resting systolic and diastolic blood pressure, pulse pressure, area of brachial pulse wave, *R* and *T* waves, and predicted vo_2 max. It was found that all training programs produced significant changes when compared with the control group, but that no 1 training program was superior to any other.

WESTERN ILLINOIS UNIVERSITY, MACOMB, ILLINOIS (G. W. Hermann)

648. BIXBY, Rodney C. *Isokinetic training at slow and fast velocities with squat bar and waist belt.* M.S. in Physical Education, 1974, 39 p. (D. F. Mapes)

Fifty-six male *S*s were randomly divided into 4 training groups to compare the effects of fast and slow velocities in a program of isokinetic training on the development of muscular strength using the waist belt or squat bar in the squat exercise. *S*s were pre- and posttested on 4 tests for max leg strength by performing the squat exercise using 2 Super Mini-Gyms. A 2-way ANOVA was used to determine the difference between $\bar{x}$ gains and a *t* for correlated $\bar{x}$'s was used to determine significance of $\bar{x}$ gains within each group. Neither the fast nor slow isokinetic velocity was more effective in the development of muscular strength. Both velocities generally produced equal gains in muscular strength as a result of isokinetic training. Neither the squat bar nor the waist belt was superior in producing strength gains. When the training technique was also used as a testing device, *S*s performed best in the specific technique they used during training.

649. BUSCHNER, Craig A. *An evaluation of graduate programs leading to a master's degree in physical education at Illinois universities.* M.S. in Physical Education, 1974, 78 p. (B. D. Rolloff)

A questionnaire was developed from guidelines and standards set forth by the National Conference on Graduate Education in HPER, Safety Education, and Dance. Areas of evaluation included: graduate student, graduate faculty, organizational patterns, instructional methodology, instructional and research resources, and programs of study. Information was collected through personal interviews with department chairpersons and graduate coordinators, graduate catalogs, brochures, faculty data sheets, and other printed materials. Major findings revealed that max faculty teaching loads ranged from 9 to 15 semester hr. Students were admitted to graduate programs after reviewing a number of selection factors. Instructional methods included primarily lecture, group discussion, and independent study. A variety of instructional and research resources were available to graduate students and faculty. The institutions studied offered 5 different types of master's degrees and 10 different tracks or emphasis areas. It was recommended that departmental purposes for graduate study in PE should be more clearly defined for students and that institutions maintaining separate departments for men and women should cooperate to provide quality programs.

650. CEDERBLAD, Jannine S. *The development of a progressive cardiovascular stress test.* M.S. in Physical Education, 1974, 39 p. (E. A. Chapman and W. I. Taylor)

Female students ($N = 26$) were used to develop a cardiovascular stress test of progressively increasing intensity, using the bicycle ergometer as the testing instrument. Each *S* was required to perform the Balke 180 treadmill test and the bicycle test to establish validity and to repeat the bicycle test to assess the reliability of the test. All 3 tests were completed by each *S* within 10 days with not less than 1 day between any 2 successive tests. Using the Pearson *r*, the validity coefficient was found to be $r = .5252$. The test-retest method of establishing reliability through the use of the Pearson *r* was also used for the bicycle test, and $r = .8722$ was found. Both the validity and reliability coefficients were statistically significant ($p < .01$). It was concluded that the bicycle test is both valid and reliable for college women.

651. CHAMPION, Michal A. *The effects of an education-involvement program on vandalism.* M.S. in Park and Recreation Administration, 1974. (R. A. Bunch)

*S*s were boys 11–14 yr of age who would be able to prevent vandalism either by refraining from the destructive act or by reporting acts of vandalism in progress. A program was administered to these individuals that would bring about an attitude change toward the swimming pool. A test consisting of a Likert-type scale administered before and after the program to measure attitude change was statistically treated with a dependent *t*. Results showed a significant change in attitude ($p < .01$). A visual comparison made between the study year 1974 and examples of previous years 1971–73 yielded a reduction in the amount of vandalism for the study year. It was concluded that an education-involvement program designed for specific objects can bring about an attitude change toward the object for individuals involved in the program. An education-involvement program brings about a sense of ownership in the object that the program is centered around.

652. ITEN, Barbara L. *Differences between pain tolerance of male and female athletes.* M.S. in Physical Education, 1974, 51 p. (E. A. Chapman)

Athletes were randomly selected from those who comprised the 1st team in each sport having intercollegiate competition for both men and women. Nonathletes were selected from the undergraduate population using a table of random numbers. Total number of *S*s was 72. The Gross Pressure Test and the Ischemic Muscle Contraction Test were used to measure pain tolerance. Results indicated that: male athletes tolerated significantly more pain inflicted by the Ischemic Muscle Contraction Test than female athletes ($p < .05$); female athletes tolerated significantly more pain inflicted by the Ischemic Muscle Contraction Test than female nonathletes ($p < .05$); there was no difference in the amount of pain tolerated in the Gross Pressure Test between male and female athletes ($p > .05$); and there was no difference in the amount of pain tolerated in the Gross Pressure Test between the female athletes and the female nonathletes ($p > .05$).

653. LAGUENS, Richard R. *Relationship between outcome and expectation to attributional causality variables for an achievement task.* M.S. in Physical Education, 1974, 59 p. (W. L. Lakie)

Male and female undergraduates evaluated their ability, effort expenditure, task difficulty, and luck after a pursuit rotor test situation. The 4 attribution of performance causality factors were examined between 8 expectation-performance categories for the purpose of determining the factor or factors that significantly affected the performance outcome associated with the initial expectation of success. Results indicated significant difference ($p < .05$) between the expectation-performance categories for the factors of ability, effort, and task difficulty. When these 3 factors were analyzed between paired expectation-performance categories, the factors of effort and task difficulty received the most critical affective expression. Potential research investigating various situational performance factors was presented which could aid the development of the attribution of performance causality theory.

654. LAVERTY, Donna J. *A comparison of selected personality variables between women tennis players who competitively participated for a country club and women tennis players who competitively participated for a park district.* M.S. in Physical Education, 1974, 121 p. (K. M. Pearson and B. V. Yeager)

*S*s from 10 country clubs ($N = 55$) and from 12 park districts ($N = 55$) volunteered to complete the Occupation Check List and the Gough Adjective Check List before a competitive match with another tennis club. To learn the prestige levels as determined by occupation, *S*s were asked to check the occupation of the head of their household. A single or divorced woman checked her occupation. The occupations checked by each of the *S*s were placed into 1 of 5 prestige levels based on the North-Hatt Study. The Mann-Whitney *U* Test was used to determine if a significant difference existed between the $\bar{x}$'s of the 2 groups on the total personality scale as indicated by the Gough Adjective Check List. A *z* value of .02 was insignificant ($p < .05$).

655. McFARLANE, Paul E. *Relationship between time to heart rate 180 and maximum oxygen consumption.* M.S. in Physical Education, 1974, 39 p. (E. A. Chapman)

Male athletes ($N = 30$) with a predicted max O_2 consumption of 45 ml/kg/min. and over were used to validate the Sitko running treadmill test by direct measurement of max O_2 consumption. Using the Pearson product-moment *r* technique, the reliability and validity coefficients were calculated. Reliability for time to HR 180 was $r = .9590$ ($N = 12$). Reliability coefficient for max O_2 consumption was $r = .9119$ ($N = 12$). For the relationship between time to reach HR 180 and max O_2 consumption, the validity coefficient was $r = .7473$ ($N = 30$). Reliability and validity coefficients were statistically significant ($p < .01$). The mean time to HR 180 was 11.30 min and the M max O_2 consumption was 57 ml/kg/min. Results indicate that *S*s who achieved the longest time to HR 180 also obtained the highest max O_2 consumption. The validity coefficient indicates that the modified Sitko running treadmill test is an acceptable estimator of max O_2 consumption.

656. MINSTER, Gary A. *A comparison of the effect of passive static stretch and the effect of active assistive static stretch on the neuromuscular activity of the semitendinosus muscle.* M.S. in Physical Education, 1974, 31 p. (D. F. Mapes)

A physiolograph was used to collect EMG recordings before stretch, immediately after stretch, and 10 min after stretch in both a control leg and an exp. leg of the *S*s. These EMG recordings were then scored by tracing the perimeter of each of the curves of a 5-sec recording period. A 2×3 ANOVA was performed on the data and $\bar{x}$ comparisons were made to determine that there was no significant difference ($p > .05$) between the intensity of neuromuscular activity before and after stretch. Although stretching reduced the activity in muscle, there was no significant difference in the methods used for reducing tension.

657. MITCHELL, Dale E. *Construction of a projective testing device to measure the drive level and motivation for excellence in athletics.* M.S. in Physical Education, 1974, 42 p. (V. L. Joy)

*S*s were 2 groups of college males, full scholarship football players ($N = 32$) and nonathletes who had never lettered in any sport in HS or college ($N = 21$) who were matched for age and school rank. Three personality scales measuring femininity, sociability, and yea saying were given first. Motivation was tested by projecting slides on a screen and asking the *S*s to construct a creative story about the picture. The personality scales showed no significant differences in the $\bar{x}$'s, but

did show a significant difference ($p < .01$) on the masculinity-femininity test of the SD of athletes. Item analysis of differences between the athlete and nonathlete groups produced 17 items which differentiated the 2 groups by 20% to 38%. Motive analysis of the projective stories of the 2 groups revealed that athletes gave from 42% to 125% more responses in the areas of professionalism, recognition of a professional, social economics, and frustration, whereas nonathletes gave from 30% to 71% more responses in the categories of family, success, relaxation, defeat, social humor, and disapproval.

658. MORRIS, Michael B. *Statewide survey of athletic directors' duties and responsibilities in selected Illinois high schools which exceed 750 students.* M.S. in Physical Education, 1974, 45 p. (L. K. Dittus)

A questionnaire was sent to athletic directors ($N = 238$) in Illinois HS's whose enrollment exceeded 750 students. The findings based on 180 responses (78% return) appear to warrant the following conclusions. The athletic directors included in this study have been delegated major responsibility for the athletic program within their schools. The questionnaire used in this study is a valid list of duties and responsibilities pertaining to athletic administration. This survey instrument could be used as a master checklist to assure the athletic director that he is performing the duties as seen by other athletic directors. The majority of the *S*s responding felt that the athletic director's position was a fulltime job.

659. MOSHER, Judy K. *The effect of the presence of others and significant others on endurance.* M.S. in Physical Education, 1974, 39 p. (B. V. Yeager)

Female intercollegiate athletes ($N = 30$) were tested for endurance as measured by performance on a bicycle ergometer set at 900 kpm/min. *S*s were instructed to ride as long as they could and their endurance time (minute and second) was recorded. *S*s were randomly assigned to control and exp. groups and each group was tested twice. The control group was tested alone each time. Exp. group A was tested first alone and second with an "other" present. Exp. group B was tested alone first and with a "significant other" present on trial 2. The Wilcoxen Signed-Ranks Test yielded significantly lower endurance times ($p < .05$) with an "other" present than performing alone. There were significantly higher endurance times ($p < .05$) with a "significant other" present than when performing alone. In the presence of an unknown "other" the level of gross muscular endurance will decrease, but in the presence of a "significant other" the level of gross muscular endurance will increase.

660. OURSO, Kenneth P. *Factors contributing to the gymnastic excellence of the Japanese.* M.S. in Physical Education, 1974, 70 p. (K. M. Pearson)

The writer, while spending over a year living and working in Japan, observed and studied the physical and cultural environments; the historical background and family life; the general organization of the school system; and attitudes of teachers, parents, and students toward the school. The description and evaluation of the gymnastic programs were based upon the writer's observations as well as a questionnaire survey sent to various JH's, HS's, and universities throughout Japan. The culture of Japan appeared to have tremendous effect on the gymnastic system. The respect for authority and self-discipline plays a major role in Japanese life. Loyalty to the group and family also have overtones that can be applied to the gymnastic program. The systematic and regimental training programs based on basic technique and the compulsory exercise from JH's through the university contribute most to the skill factors involved in learning gymnastics. There is no one factor that contributes to the gymnastic achievement of the Japanese, but their success entails a combination of factors involving certain aspects of their society that are as old as Japan itself. The entire oriental way of life is responsible for the unusual achievements of the Japanese people.

661. PARKER, Michael J. *The effects of warm climatic extremes on submaximal oxygen consumption.* M.S. in Physical Education, 1974, 38 p. (E. A. Chapman and P. W. Hutinger)

Male college students ($N = 12$) were used to investigate the effects of environmental temp. on submaximal O_2 consumption. In addition the effects of environmental conditions on HR, pulmonary ventilation, and oral temp. were examined. All *S*s repeated 6-min ergometer rides at a standard workload under 3 different environmental temps (70°, 100°, and 120° F). Using ANOVA,

significant F-values ($p < .05$) were revealed for HR and pulmonary ventilation volumes. Oral temp. elicited an F value that was significant ($p < .01$). Submaximal O_2 consumption was not found to vary significantly ($p > .05$) as a function of environmental temp. It was concluded that temp. is not a limiting factor on submaximal vo_2 in short work bouts. On the other hand, temp. significantly affected HR, ventilation vol., and oral temp.

662. PIANE, Joseph P. *A comparison of the results of two surveys of Moroccan physical education: 1967 and 1974*. M.S. in Physical Education, 1974, 60 p. (K. M. Pearson)

Ss ($N = 11$) were U.S. Peace Corps volunteers who were teaching PE in Moroccan teacher training centers. All had received undergraduate degrees in PE from colleges and universities in the U.S. and each spoke Moroccan Arabic and, in some cases, French. Each *S* had lived in Morocco for a period of 6 mo to 1.5 yr. The data were collected by means of the ICHPER questionnaire that had been used in 1967. The results revealed that what was present at the primary and secondary levels was relatively consistent throughout the country. Although there appeared to be lack of coordination between schools, the most outstanding finding was the seeming total lack of objectives for PE. There appeared to be no established curriculum used at the teacher training centers, which may have been caused by a lack of communication between the Ministry of Education and the training institutions. In the community, the PE teacher was a respected individual, but the physical educator was not highly respected in the field of education. Physical educators did not make educational policy and did not participate in groups to achieve or regulate educational policy.

663. REESE, Robin D. *Expectancy for internal-external control of reinforcement and participation in women's intercollegiate athletics*. M.S. in Physical Education, 1974, 42 p. (W. L. Lakie)

The study attempted to determine whether differences in expectancy for internal or external control of reinforcement existed among Caucasian female varsity athletes who participated in team sports ($N = 40$), those who participated in individual and/or dual sports ($N = 40$), and those students who never participated in any form of interorganizational athletics ($N = 40$). The data collected consisted of scores obtained on Rotter's Internal-External Control Scale. A fixed model 1-way ANOVA was used to determine if differences existed among the 3 groups in their expectancies for internal vs. external control of reinforcement. Differences in locus of control among the 3 groups were not statistically significant ($p < .05$).

664. SCHMIDT, Paul N. *A study of varsity letter winners and graduation at Western Illinois University: 1964–74*. M.S. in Physical Education, 1974, 63 p. (W. M. Hughes)

The study determined the percent of male athletes who received a varsity letter in an intercollegiate sport at Western Illinois University (WIU) but did not graduate from WIU during the years 1964–1974. The data on each athlete were obtained through the Registrar's Office and divided into the following categories under each sport on a yearly basis: graduated from WIU; did not graduate from WIU; still in school at WIU; PE major; other major. Besides being compiled on a yearly basis, the data were computed on a 5- and 10-yr basis for each sport. It was found that 19.56% of all *S*s in this study did not graduate from WIU. This was considerably lower than that of the overall student population found in the related literature, which ranged from 30% to 60%. In addition, it was found that 42.96% of all the *S*s were PE majors.

665. SILVERSTEIN, Ira N. *The effects of cryotherapeutic medical galvanic current in the treatment of moderate ankle sprains*. M.S. in Physical Education, 1974, 28 p. (R. E. LaRue and P. W. Hutinger)

College students were used as *S*s to determine the effects of cryotherapeutic medical galvanic current on increasing pain-free range of motion in the treatment of moderate ankle sprains. The cryotherapeutic medical galvanic group consisted of 9 males and 1 female, whereas the ice treatment followed by the medical galvanic current group included 6 males and 4 females. Data collected for both groups included the initial pretreatment and posttreatment pain-free range of motion of the injured ankle for 4 consecutive days. The mean recovery rate for those *S*s who were treated with cryotherapeutic medical galvanic method was statistically significant ($p < .05$) when compared to the mean recovery rate of the *S*s first receiving ice treatment followed by the medical galvanic current. Pain-free degrees of motion gained during the 4 consecutive days of treatment exhibited a quadratic trend.

666. SINGH, Arnold I. C. *Effects of a planned physical education program on cardiovascular endurance of fifth and sixth grade boys.* M.S. in Physical Education, 1974, 33 p. (P. W. Hutinger)

*S*s were male students ($N = 40$) between the ages of 10 to 12 yr. Two intact groups were randomly assigned to the exp. group and 2 intact groups were randomly assigned to the control group. All *S*s in both groups were tested in the 600-yd run-walk at the beginning and end of the study. The training program was 6 wk in duration. Eight to 10 min before the PE activity the exp. group practiced the following exercise items in a circuit: bench stepping, jumping jacks, running in place, and rope skipping; this group then took part in the planned PE activity. The control group did not participate in any training program. A t for correlated means showed a significant gain (decrease) ($p < .01$) in time scores within the group, while the control group showed a significant loss (increase) ($p > .05$). The Pearson r coefficient revealed a significant relationship ($p < .05$) between pretest scores and gains. An ANCOVA was used to determine that there were statistically significant differences ($p < .001$) in the mean time score reductions in favor of the exp. group.

667. WEITH, Sandra M. *The differences in movement satisfaction between grade levels, skill levels, and sex of elementary school age children.* M.S. in Physical Education, 1974, 42 p. (E. H. Docherty)

*S*s ($N = 96$) were students in grades 1 through 6 in 3 public ELE schools in Macomb, Illinois. *S*s were given the Tanner Movement Satisfaction Scale and were ranked according to high or low skill level by the PE teacher in their school based on criteria selected by the researcher. Skill level rating included running, jumping, throwing, catching, kicking, and striking performances as observed during the year's program. Double classification ANOVA was used to determine differences between grade level and skill level, and differences between grade level and sex on the measure of movement satisfaction. A significant difference was obtained between grade levels with an F of 3.945 ($p < .01$). Post hoc comparisons as measured by the Tukey Multiple Comparison Test revealed a significant mean difference between 2nd and 6th grade *S*s with regard to movement satisfaction scores. The obtained Fs of 1.293 between skill levels and .556 between sexes were not significant ($p > .01$).

PERIODICALS REVIEWED

* Acta Chirurgica Scandinavica
* Acta Medica Scandinavica
* Acta Morphologica Neerlando-Scandinavica
* Acta Orthopaedica Scandinavica
* Acta Paediatrica Scandinavica
* Acta Physiologica Scandinavica
* Aerospace Medicine
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Cancer Research
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* Circulation
Clinical Science
* Clinical Science and Molecular Medicine
Community Mental Health Journal
* Danish Medical Bulletin
* Diabetes
Educational and Psychological Measurements
* Ergonomics
* European Journal of Applied Physiology and Occupational Physiology (formerly Internationale Zeitschrift für Angewandte Physiologie)
Experimental Cell Research
FDA Consumer (Papers)
* Federation Proceedings
Genetic Psychology Monographs
* Geriatrics
* Government Reports Announcements
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Health Education Journal
* Health Services Reports
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* Indian Journal of Medical Research
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* International Journal of the Addictions
International Journal of Health Education
* International Journal of Occupational Health and Safety (formerly Industrial Medicine and Surgery)
* International Journal of Social Psychiatry
* International Review of Sport Sociology
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* Johns Hopkins Medical Journal
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* Journal of the American Medical Association

* Periodicals marked with an asterisk have research reports listed in Part II—Bibliography of this issue of *Completed Research*.

* Journal of Anatomy
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* Quarterly Journal of Studies on Alcohol
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The second volume in a series of research reports designed to provide the practitioner with scientific evidence on which to base decisions relating to programs of physical activity and athletics for girls and women. The content is applicable to all levels and can be easily understood by the person without a background in research and statistics. Some of the specific topics covered are femininity and achievement, female aggression, familial influence, stress conditioning, ability and prediction, and iron deficiency. 1973.

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